BOSTON UNIVERSITY

GRADUATE SCHOOL

Thesis

A STATISTICAL AND THEORETICAL TREATMENT OF HOURS OF WORK IN THE UNITED STATES

by

PAUL M. CUENIN, JR.

(B.S., Boston College, 1947)

Submitted in partial fulfilment of the

requirements for the degree of

Master of Arts

1949

Approved

by

First Reader Francis S. Poe
Professor of Economics

Second Reader James W. Kelley
Professor of Economics

OUTLINE

CHARTS AND TABLES

CHAPTER I

INTRODUCTION

The hours of work have been a social and economic problem in the United States for more than a century and a half. Although, it is common knowledge that the hours of work have been greatly reduced through the years, many of the factors which have caused the decrease, the theories for and against shorter hours, the economic implications of shorter hours, and the problems of computing indices of hours are not manifest. Thus, the purpose of this thesis is fourfold: 1) To make an historical survey of the hours of work in the United States, 2) To set forth the various theories offered by both management and labor in regard to the shortening of the hours of work, 3) To examine the relationship of the hours of work to productivity, and to study statistically and theoretically the distribution of gains of increased productivity, 4) To examine the statistical problems involved in the computation of an index of hours.

Therefore, in Chapter II, the history of the hours of work in the United States is presented in order that the reader may obtain an understanding of the problem. The history extends from the first strike over hours of work

in 1791 to 1949.

The third chapter contains a survey of the many theories which have been advanced by both labor and management concerning shorter hours. In order to classify the arguments for and against shorter hours of work, the chapter is divided into three sections: 1) the Social Theories of the Hours of Work, 2) Labor's Reasoning for Shorter Hours, and 3) Management and Shorter Hours. The purpose of this chapter is to present the argumentation offered by both sides in the battle of shorter hours.

Chapter IV is a study of the economic implications of shorter hours. One of the more important economic problems concerning the hours of labor is their effect upon productivity. Thus, the first part of the chapter is a study of the cause and effect relationship between the hours of work and productivity. Furthermore, since productivity has greatly increased over the years, the last part of the thesis consists of a statistical and theoretical examination of the distribution of gains of increased productivity to the participants in the productive process and to consumers.

Appendix I is devoted to the statistical problems involved in the computation of an index of hours. In order to make the problems more tangible, several indices of hours are presented and discussed. Since an index number is a method of measuring the relative change in hours over time, the

problems concerning the useful statistical device are important to a study of the hours of work.

Before entering the main body of the thesis, we should define certain terms relative to the hours of work so that the reader will not be confused. First, there is a fundamental difference between standard hours and actual hours. The standard hours of labor are the nominal or basic hours which have been established either by law or collective bargaining. On the other hand, actual hours are those which are, in fact, spent working. Therefore, in any period, actual hours may either exceed or be less than the standard hours.

Furthermore, when reference is made to the hours of work; it is customary either to speak of the hours per day, the hours per week, or the days per week. These classifications are significant, for no one of them has any direct connections with the others and thus, no conclusions may be drawn from one to another. We are now ready to begin the first chapter.

CHAPTER II

An Historical Survey of the Hours of Work in the United States

I. Early Struggles for the Ten-Hour Day

Hours of work have been a major controversy between labor and management for more than a century in the United States. The first hours dispute in this country occured in Philadelphia in May, 1791, when the carpenters struck for a ten-hour day. Although they failed in this attempt, they organized a cooperative society and advertised their work at some twenty five per cent less than the price established by the masters. The journeymen carpenters had become incensed because the masters wanted to pay them by the piece during the short working day of winter, and by the day for the longer working day of summer. To eliminate the obvious inequality, the carpenters demanded a specific working day from six o'clock in the morning to six o'clock in the evening with one hour for breakfast and one hour for dinner.[1]

Two years later the "female weavers" went out on strike along with the men contract workers in Pawtucket, R. I. to resist an increase in hours; this was the first known strike in the United States in which women participated.[2] The

---

1. J. R. Commons and Associates, History of Labor in the United States, (New York: The Macmillan Co., 1918) p.69.
2. Florence Peterson, Survey of Labor Economics, (New York: Harper and Brothers, 1947) p. 420.

following year there was a general strike of Boston Carpenters for a ten-hour day and in 1828, the textile workers in Paterson, New Jersey, Philadelphia and Boston went on strike in protest against long hours and low pay.[3]

The "sun to sun" rule of work predominated in the new nation, for the hardy background of the citizens demanded long and vigorous toil. Furthermore, public opinion of the period, influenced by the ethic that idleness is a vice, not only condoned but favored the long working day.[4] When the hours carpenters went out on strike in Boston in 1825 for the ten-hour day, the "gentlemen" engaged in business (the master carpenters) argued that a shorter working day would:

> "seduce the journeymen from the course of industry and economy of time an affect to which we are anxious to enure them and--- to expose them to many temptations and improvident practices---we consider idleness the most deadly ban to usefulness and honorable living---and we dread the consequences of such a measure upon the morals and well being of society."[5]

Somewhat sorrowfully, the "gentlemen" engaged in business observed that the ten-hour day movement was one which:

> "---we cannot believe to have originated with the faithful and industrious sons of New England", but must be rather"---an evil of foreign growth."[6]

---

3. J. R. Commons, History of Labor in the United States, op. cit., p. 69.
4. Harry A. Millis and Royal E. Montgomery, Labor's Progress and Some Basic Labor Problems (New York: McGraw-Hill Book Co. Inc. 1938) Vol. 1, p. 465.

This particular strike which raised such admonitions from the masters failed, although it was timely, coming in the spring of the year.

The next prominent ten-hour strike was conceived by the Mechanic's Union of Trade Associations of Philadelphia in 1828. This association was the first effective city central in the United States, and the first labor party, the Workingmen's Party, was its offspring. Labor's awakening stemmed from both economic and political causes. There was inequality between the citizens, not primarily between employers and wage earners, but between "producers" and "consumers". During this period, labor fought for two main demands; leisure and public education. Little time was allowed for leisure as long as the system of work, taken from agriculture, was toil from "sun to sun". During the winter months, the hours were a little shorter than in the summer, but nevertheless, were very long.

J. Montgomery in a survey found the following conditions to be the common practice:7

---

5. J. R. Commons, Documentary History of American Industrial Society, (Glendale, California: The H. Clark Co., 1910) Vol. 6, p. 76.
6. Ibid.
7. J. R. Commons, op. cit., p. 95.

Hours Per Day	Place	Season	Average Per Week
11 hours 24 min.	Lowell, Mass.	Winter	
13 hours 31 min.	Lowell, Mass.	Summer	73½ hours
13 hours 45 min.	South & West	Summer	75½ hours

The protests against these excessive hours of labor were made primarily by farmers and craftsmen not by the factory workers who were at this time mostly women and children.

Thomas Skidmore took the lead in New York in 1829, where the Workingmen's Party labored to prevent the working day from being lengthened to eleven hours from ten. Skidmore, a machinist and leader of labor's political activity during this period, said he would not only oppose the increasing of the hours of work, but would investigate other phases of labor-management relations. Incidentally, when Skidmore threatened to broaden the issue, the masters promptly abandoned their efforts to extend the working day.[8]

Although the ten-hour day was general in the New York area by 1829, this was not true of other parts of the country. Darkness was the only limit of the working hours of children in the factories of Philadelphia in 1830 and in 1835 the factory workers of Paterson, New Jersey struck for an eleven-hour day and got twelve, a reduction of one hour.[9]

---

8. Herbert Harris, American Labor, (New Haven: Yale Univ. Press 1938) p. 31.
9. J. R. Commons, Documentary History of American Industrial Society, Vol. 6, p. 61-68.

Joined by other building tradesmen, the carpenters of Boston went out on a seven months strike in 1835, and although public sympathy was favorable to their cause, the strike was lost. Nevertheless the news of the Boston action stirred the Philadelphians, who began a larger movement for the ten-hour day. They held mass meetings and parades, but the deciding factor proved to be the award of the ten-hour day to city employees by the city council. Following this lead, the masters succumbed. It may be noted that it was in the building industry that the shorter hours movement had its origin and gained its impetus.[10]

Established in 1834, the first National Trades Union attempted to advance the moral and intellectual conditions and pecuniary interests of labor. Thus, one of its purposes was to help the locals fight for the ten-hour day. Although the organization only lasted three years, until 1837, the ten-hour movement did not die. Rather, it received further impetus in 1840 when President Van Buren ordered the ten-hour day to be put into effect for government workers.[11] The movement continued to gain momentum, and in 1843 there was a convention of mechanics in Boston for shorter hours. Many petitions were submitted to the legislature, which

---

10. Harry A. Millis and Royal E. Montgomery, op. cit., p. 466.
11. Marion Cotter Cahill, Shorter Hours, (New York: Columbia Univ. Press, 1932) p. 32.

investigated the alleged conditions and reported in favor of the ten-hour day. However, the legislature failed to take any direct action. In 1848 and 1849, New Hampshire and Maine passed laws for the shorter working day, but they were not enforced and did not prove very effective.

These campaigns for shorter hours which have continued ever since started to show progress during the 1850's. But the trend toward shorter hours was by no means uniform throughout all the trades and areas of the country. Long after the ten-hour day had been gained in some skilled trades, such as the building trades, the twelve and thirteen-hour day persisted elsewhere. For example, thirty years after many of the organized journeymen craftsmen had gained a forty-eight hour week, many unorganized workers were on a sixty-five hour or longer week. Industry by industry, plant by plant, the struggle continued, with successive reductions from one plateau to another. Sometimes gains were not spread even throughout a single plant but were confined to particular groups of employees.[12]

Thus, the agitation continued up to the Civil War, which marks a transition in our economy. No longer an agricultural country, we became an industrial nation; and with this, the trade union movement became firmly established

---

12. Florence Peterson, op. cit. p. 421.

and better able to carry on the forthcoming struggles for the shorter working period.

II. The Eight Hour Movement

During the period immediately following the war between the states, the objective of many labor organizations was to legislate an eight-hour day into existence. Pressure for shorter hours was very potent for a number of reasons. In the first place the return of the soldiers to civilian occupations roused the fear of job scarcity; secondly, national unions, which grew very rapidly after the war, made labor's voice better heard. Moreover, as industrialism moved to the front in our economy, cities grew in size, and this lengthened the effective workday by involving additional time to go to and from the job. Finally, the workers felt a growing sense of injustice toward the economic system which made for very great extremes of wealth and poverty, of long hours of labor for the many and leisure for the few.[13]

One may wonder why the labor leaders of this period chose political action rather than economic to accomplish their goal of the eight-hour day. In the first place, employers were most unlikely to voluntarily grant the eight-hour day, because they could not reconcile shorter hours with proper morality, maintenance of output, or minimum

13. Marion Cotter Cahill, op. cit., p. 31.

costs. On the other hand, the unions had not yet attained sufficient power to consider it advisable to stage an economic struggle on this question. Moreover, precedent led them to this method: the reformists of American labor had long felt that political action was the correct approach to the problem. Actually, this precedent had some foundation in fact. First, there was President Van Buren's Ten-Hour Executive Order of 1840, state laws for the ten-hour day were legislated in Pennsylvania, New Hampshire and Maine, and finally, the example of England's legislation.[14]

Eight-hour leagues of laborers were formed in numerous placed to agitate for the establishment of the shorter day. Many were organized in and about Boston, and others were soon functioning in the Middle West and even to New Orleans and San Francisco.[15]

The Grand Eight-Hour League of Massachusetts, under the leadership of Ira Steward and Wendell Phillips, was particularly active. Wendell Phillips, at a meeting in Faneuil Hall in November, 1865, demanded the eight-hour day to establish justice and equality of opportunity, by giving the worker time to develop his intellect.[16] At the same meeting Ira Steward proposed an eight-hour law for Massachusetts and advocated enforcement by the creation of a

---

14. Ibid., p. 32.
15. Ibid., p. 33.
16. W. Phillips, Speeches, Lectures and Letters, Boston, 1894, p. 142.

commission with powers of investigation and prosecution.[17]

Ira Steward, the Boston machinist, devoted his life to the eight-hour day movement and it was his wife who composed the following doggerel:

> "Whether you work by the piece,
> Or work by the day,
> The longer the hours,
> The shorter the pay."

In its cruder form, the economic basis for shorter hours assumed a share-the-work-argument; if hours were reduced, more jobs would be available. When this argument was used originally, labor was willing to accept a reduction of hours with a commensurate cut in weekly wages, on the theory that the shorter day would decrease the supply of labor and thus enable workers in the long run to raise their wage rates. It was this belief that gave rise to the above doggerel.[18] Ira Steward further argued for the eight-hour day by saying:

> "men who labor excessively are robbed of all ambition to ask for anything more than will satisfy their bodily necessities---"

and he insisted that reduction of the hours of labor would stimulate consumption and consequently production as well.[19]

The Eight-Hour Leagues and other associations engaged in the struggle for the shorter working day finally evolved

---

17. J. R. Commons, Documentary History of American Industrial Society, (Glendale, California: The H. Clark Co., 1910) Vol. 9, pp. 302-303.
18. Florence Peterson, op. cit. p. 423.
19. The Encyclopedia of the Social Sciences, (New York; The Macmillan Co., 1932) Vol. 7, p. 490.

into the National Labor Union, and William H. Sylvis became the leader of the movement. However it was short-lived because of the failure to concentrate on one reform. Besides the eight-hour demand, they dealt with other issues such as the land question, prison labor, women in industry and cooperations. Furthermore the movement lost energy by attempting to form an independent political party.

In 1868 Congress passed an eight-hour day law for all workingmen who were employed by or on behalf of the government. However, the law was interpreted by many department heads as carrying with it a reduction in wages. William H. Sylvis appealed to President Johnson who ordered that there should be no wage reduction, but the order was never executed by the various departments because they believed that such action was illegal. After an appeal to President Grant also failed to bring about the desired results, Congress finally in 1872 passed a resolution directing that government workers should be compensated at the rate of ten hours' pay for eight hours' work.[20]

Unlike the National Labor Union, the Knights of Labor was not organized with the hours question as the dominant motivating force. Such leaders of the Knights as Stephens and Powderly definitely favored legislative action alone to

---

20. T. V. Powderly, Thirty Years of Labor, (Columbus, Ohio: Excelsior Publishing House, 1890,) p. 476.

attain the eight-hour day, and the record of the organization indicates they offered little more than moral support to the issue.[21] Nevertheless, the first national strike into which the Knights of Labor was drawn was that of the Brotherhood of Telegraphers for the eight-hour day, pay for Sunday work and improved conditions in 1883. The Western Union fought them bitterly. Financial weakness caused the union to abandon the strike, and the open shop was made the condition of return to work. This was the sole national attempt of the Knights of Labor to establish the eight-hour day by direct action.[22]

Even though nineteen states and one territory had prescribed hours of labor by 1886, the laws were rendered ineffectual by clauses allowing contracts for longer working days. For example:

> "In Minnesota, the legislature has found it necessary to impose a penalty of from twenty five to one hundred dollars to be inflicted upon any officer or employer of a railroad company who compels a locomotive engineer or fireman to labor more than eighteen hours a day, except in cases of urgent necessity."[23]

With the advent of the Federation of Organized Trades and Labor Unions of the United States and Canada, later to be

---

21. Marion Cotter Cahill, op. cit., p. 40.
22. N. J. Ware, The Labor Movement in the United States, 1860-1895, (New York, D. C. Heath and Co., 1929) p. 129.
23. Public Laws of Minnesota, 1885, Chap. 206, p. 277, cited in Samuel Yellen, American Labor Struggles, (New York: Harcourt Brace and Co., 1936) p. 40.

known as the American Federation of Labor, the emphasis was changed from legislative to economic action.[24] The legislative method had failed to bring about shorter working hours. The eight-hour movement was too revolutionary to be fulfilled without the compulsion of a strong labor organization. The press of the nation ridiculed the demand as preposterous. The Illinois State Register, for instance, declared that the:

> "---one most consummate piece of humbuggery ever suggested in connection with the labor question is the so-called eight-hour movement. The thing is really too silly to merit the attention of a body of lunatics---and the idea of striking for eight hours is about as sensible as striking for pay without work."[25]

At its Chicago convention in 1884, the forerunner of the American Federation of Labor passed a resolution to hold a general strike on May 1, 1886, and that after this date the eight-hour day would constitute a day's labor. They invited the Knights of Labor to cooperate with them in this venture, but the leaders of the knights could not decide. Again, at the convention in 1885, the resolution was proposed and supported. In March 1886, T. V. Powderly issued a circular to all assemblies asking them not to rush into the eight-hour movement. He said there had been no thorough planning for the movement and thus the Knights of Labor did little

---

24. Marion Cotter Cahill, op.cit., p. 49.
25. The Centennial History of Illinois, Vol. 4, Springfield, Illinois; Illinois Centennial Commission 1920, p. 463 cited in Samuel Yellen, op.cit., p. 40.

officially to aid the proposed walkout. However, unofficially the members in the local assemblies of the knights supported it vigorously, for they felt that a shorter day could furnish jobs for the unemployed and would provide the worker with leisure in which to educate and enjoy himself.[26] On May 1, 1886, in response to the eight-hour plea, at least 190,000 workers struck for a shorter day, while an additional 150,000 secured their demands merely by the threat of a strike. Thus the total number of workers engaged in the movement was 340,000.[27] One of the centers of the strike was Chicago where 80,000 strikers took part. There was a group of Syndicalists within the Chicago labor movement, and although it supported the eight-hour day issue, it felt little could be accomplished by the movement. Rather, the Syndicalists believed capitalism could be overthrown. A demonstration was called at the McCormick Harvester Works, and as fights broke out between strikers and strikebreakers, the anti-labor police killed four strikers. So the Syndicalist leaders, Parsons, Spries, Fielden, Engel and Schwab hurriedly passed out leaflets urging the workers to arm themselves and to meet in Haymarket Square. Parsons and others spoke, and the meeting proceeded in an orderly

26. Ibid., p. 42.
27. Bradstreets, May 15, 1886, cited in Ibid, p. 44.

manner. However, the police arrived to break up the demonstration; a bomb exploded in their midst, wounding sixty-six, or whom seven later died. Hysterically, the police opened fire, wounding two hundred and killing several of the crowd.[28] Seven leaders of the anarchists were arrested, and they received little justice at their trial. Four were finally hung, one committed suicide and the others received prison terms. The entire episode gave unionism an unwholesome name, and the Haymarket Square bomb destroyed whatever success the eight-hour walkout might have obtained. After the incident, out of the original 190,000 strikers in the United States, no more than 80,000 remained on strike and many were locked out. While it is true that 42,000 of the 190,000 original strikers in the country won their demands and that 150,000 as has been pointed out, were granted shorter hours without striking, the concessions were short-lived.[29] Thus, the hours were lengthened again, and the workmen of the nation turned to the American Federation of Labor to aid them in their struggle.

According to the available statistics, the average hours of labor in manufacturing industries were ten per day in 1890.[30] However, this was not true in all industries.

---

28. Ibid., p. 55.
29. Ibid., p. 67.
30. Adams and Sumner, Labor Problems, (New York: The Macmillan Co., 1914) p. 518.

In the steel industry, for example, the twelve-hour day was the accepted rule and continued to be until 1923. In practically all industries during the period there were wide differences in hours worked in different cities and states, and also among various groups of employees within the same industry. In general, hours were longer in the South than in the North and longer in the North and longer in the rural areas than in the industrial areas.

With these general conditions as a background, the American Federation of Labor launched a strike on May 1, 1890 for the eight-hour day. Instead of a general strike, the carpenters volunteered to take the lead. The day chosen for the strike was quiet, but shorter hours were gained in 137 cities by approximately 46,000 carpenters.[31] The following year the United Mine Workers were supposed to take the initiative in the strike movement, but their position was too weak to fulfill the task. In 1898 the machinists declined to strike for the eight-hour day. In 1900, the granite cutters struck, and a complete victory was obtained as the result of the strength of their union.[32] This was the last effort for the advance of the eight-hour movement, for after 1900, the American Federation of Labor

31. Marion Cotter Cahill, op. cit., p. 161.
32. Ibid., p. 163.

no longer sponsored a direct action program for the universal adoption of the eight-hour day. Thus it was that the eight-hour movement as such came to a close. However, it is not true that all workers in the United States had gained these shorter hours, but from this time on the struggle for the eight-hour day was left to individual unions, and the program lost its national significance.

III. Hours of Labor from 1900 to the Present

During the first decade of the new century, the agitation for shorter hours by individual unions became increasingly stronger. Between 1900 and 1914 the building-trades workers and a few other fortunately situated and well-organized groups obtained the forty-four-hour week in various parts of the country. During this period there was a reduction of 4.9 hours in the work week of all groups of workers averaged together. However, in 1914 only 11.8 per cent of the workers in manufacturing had standard weeks of forty-eight hours or less, while 48.9 per cent worked fifty-five hours or more, and 26.9 per cent sixty hours or more.[33]

As far as the American Federation of Labor was concerned, the earlier ambitious shorter-hours' program was replaced by discussion, and the Federation, in 1902, drifted into an

33. Paul H. Douglas, Real Wages in the United States, (Boston and New York: Houghton Mifflin Co. 1930), pp. 112, 114, 119, 136, 163, and 208.

inactive policy, merely recommending:

> "that at each succeeding national and international convention of trade unions, the eight-hour day and means for its achievement shall occupy a most prominent place in discussions; that local unions and central bodies give the eight-hour day special consideration at every opportunity."[34]

Nevertheless, the rank and file continued to strive for shorter hours, and dissatisfaction with the Federation's "do nothing" policy grew. Thus, the conventions of 1914 and 1915 witnessed minority attempts to make the central body use the legislative method to obtain the eight-hour day, but to no avail.

With the advent of World War I, the American Federation of Labor took a more active interest in shorter hours. In 1916, The Federation cooperated with the Railroad Brotherhoods to obtain the passage of the Adamson Act. This law established a basic eight-hour day for employees on interstate railroads.[35] During the war period, the demand for labor was unprecendented, and workers found themselves in position to organize and press their demands. Furthermore, they were encouraged to seek the shorter working day by the favorable attitude of the federal government and by the requirement of a basic eight-hour day on government contracts.

---

34. American Federation of Labor, Proceedings, 1902, p. 222.
35. Richard A. Lester, Economics of Labor, (New York: The Macmillan Co. 1947), p. 369.

Such vital industries as slaughtering and meat packing, boot and shoe manufacturing, newsprint paper, the lumber industry in the Northwest, and the garment trades adopted the eight-hour standard during the war in order to attract scarce workers. By 1919, 48.1 per cent of the workers in manufacturing had secured a basic working week of forty-eight hours or less: 25.8 per cent had full-time weeks of fifty-five hours or more; and 12.0 per cent were working schedules of sixty hours or more.[36]

By 1921 more than half of the factory workers, in comparison to only one-ninth in 1914, were laboring a forty-eight hour week, while one-fourth did so in 1914. Nevertheless, these gains should not be permitted to obscure the fact that thousands of workers were still employed by firms whose working periods were much longer. According to a report of the Federated Engineering Societies in 1922, 300,000 wage earners in the United States, half of whom were employed in the iron and steel industry, were still working on the twelve hour shift basis.[37] Since steel-making is a continuous-process industry, the shortening of hours necessitates the employment

36. Data for 1919, and 1921 from Census of Manufacturers, 1923, p. 1150.
37. Committee on Work Periods in Continuous Industry, Federated American Engineering Societies, The Twelve-Hour Shift in Industry, p.12.

of additional crews, and an entire rearrangement of work shifts which, from the management's side, presented a more complex undertaking than a mere curtailment in the number of hours of plant operation. Thus, this industry was less willing than others to adopt the eight-hour shift. Furthermore, the steel unions were not strong and could not force a change.

At its 1926 convention, the American Federation of Labor made a declaration for the five-day week on the ground that changes in the method of production had resulted in an excess capacity to make goods, and in a greater strain on the physical and nervous condition of the laborer.[38] In 1927, the convention emphasized the need for a campaign of education to bring about the universal establishment of the five-day week.[39]

Although the Federation did not move from words to action, individual unions began to attain the five-day week for their members. In 1926, there were 40,596 trade union members in sixty-six cities having the five-day, forty-hour week.[40]

The most conspicuous employer who urged the five-day week was Henry Ford. He argued that the shorter working time was necessary in order to afford the workers an opportunity to enjoy the consumption of commodities which they had produced. This he felt would insure a balance between production and consumption. By no means did all employers agree, and there

38. American Federation of Labor, Proceedings, 1926,pp.197-207.
39. American Federation of Labor, Proceedings, 1927,p.400.
40. Lamar T. Beman, Five Day Week, (New York: The H. W. Wilson Company, 1928) p.46.

was opposition to the proposal.

At any rate by 1930, 55.5 per cent of the building trades workers, 43.3 per cent of the workers in the automobile industry, 34.4 per cent of those in the radio industry, 27.0 per cent of those engaged in dyeing and finishing textiles, and 24.9 per cent of those in the aircraft industry had obtained the basic five-day week.[41] At this point, the depression struck the nation, and as it tightened its stranglehold on our economy, the six-hour day, as well as the five-day week, was proposed by the 1932 convention of the American Federation of Labor as a practical solution to the woes of the economy.[42]

The great depression brought a drastic reduction of hours actually worked, and a share-the-work movement came into being. As a result of the most extensive experiment in government control of hours ever attempted in the United States, there was a reduction of about 20 per cent in the average standard working time. The National Industrial Recovery Act of 1933 extended the federal government regulation of hours to private employment outside the field of transportation and government contracts. The N.R.A. codes provided for an hours ceiling and a wage floor. The basic-week provisions of almost every code were qualified by exemptions and clauses allowing some

41. Extent of the Five-Day Week, Monthly Labor Review, Vol. 33, September, 1931, pp.3-4.
42. American Federation of Labor, Proceedings,1932, p.282.

elasticity. However, it was felt in some quarters that the amount of flexibility was inadequate. The basic weekly maximum hours of labor ranged from 27 hours per week to 56 hours per week, but by far the most common was the forty hour standard week.[43]

Harry A. Millis and Royal E. Montgomery make the following generalizations concerning the code provisions with respect to the hours of work: (1) The reduction in the basic workweek was far greater than in the first thirty years of the century. (2) The codes did not establish maximum hours which were greatly lower than the hours actually being worked during the depression period. (3) Even though (2) above was true, the N.R.A. prevented a lengthening of the working week which otherwise would have occurred. (4) This depression curtailment of hours of labor gave permanent impetus to the movement for a shorter working week.[44]

Following the invalidation of the N.R.A., the Fair Labor standards Act of 1938 was enacted. The hour clause in the act established a maximum work week, but not a daily maximum, for employees engaged in interstate commerce and in the production of goods for interstate commerce. The law provided for time-and-a-half rates for all hours worked in excess of the maximum, but did not limit the number of hours any worker could actually

---

43. The National Recovery Administration, American Liberty League, Washington, D.C., Document No.11, January, 1935.
44. Harry A. Millis and Royal E. Montgomery, op.cit., p.484.

work. It provided for a downward revision of hours; a maximum of 44 hours a week during the first year, 42 hours the second year, and 40 hours beginning October, 1940. However, in the case of seasonal industries, the maximum work day was 12 hours, and the maximum work week 56 hours for 14 weeks in a year, with time-and-a-half for hours beyond these maxima. Since the passage of this Act most unions have directed their attention toward establishing a normal work week consisting of eight-hour workdays from Monday through Friday. The Act establishes no daily maximum, and in the absence of arguments to the contrary, the 40 hours specified in the law can be spread over six or seven days or telescoped into fewer than five days without the payment of overtime rates for longer than eight hours.

In 1938, the average hours worked in the rubber, steel and automobile industries dropped to 32 per week, but increased again the following year as business activity increased. By 1941 the rearmament program had brought increases in the average hours worked per week, and by April, 1942, the average worker was spending 42.5 hours per week in the factory. Employees of defense industries were actually working 47 and 48 hours per week.[45] For the duration of World War II actual hours of work increased until they reached a peak average in 1944 of slightly more than 45 per week for all manufacturing

45. U.S. Bureau of Labor Statistics, Labor Information Bulletin, Vol.9, June, 1942, p.6.

employees.[46] At the beginning of the War, President Roosevelt issued an order that all statutory provisions affecting the hours of labor and the payment of overtime should be observed. In conformity with this policy, the 48 hour week was generally adopted throughout the war industries, with eight hours overtime rates in agreement with union contracts and the Fair Labor Standards Act.

Immediately following the end of the war, the actual time worked by manufacturing employees declined four hours a week on the average.[47] Nevertheless, in 1946 actual hours of labor averaged one hour more than the basic hours. However, some union contracts in effect in 1946 called for less hours than forty per week. For example, most of the organized glass, rubber tire and men's clothing workers were on a thirty-six-hour week, although in the glass and rubber tire industries, overtime pay did not begin until after forty hours had been worked. The thirty-five hour week prevailed in the women's clothing, fur and hat industries and in coal mining; the thirty-seven hour week was prevalent in newspaper publishing. Many of the building-trade unions had obtained the thirty and thirty-five hour week.[48]

---

46. U.S. Bureau of Labor Statistics, Handbook of Labor Statistics, 1947 Edition, Bulletin No. 916, p.54.
47. Ibid.
48. Florence Peterson, op.cit., p.438.

Thus, we have reviewed a century of struggle for shorter hours, which has seen hours reduced from an average of fourteen hours per day to an average of eight hours per day. The hours of work problem has had a long history in the United States and represents, as well as any issue, the efforts of the American labor movement to improve the lot of the working population.

Furthermore, it reflects the great advancement of our capitalistic economy that has made it possible for men to work less and attain the opportunities of leisure.

CHAPTER III

Hours of Work Theories

Like all problems that are of major concern to more than one group, the shortening of the hours of labor has its antagonists and protagonists. It has been natural for the labor movement, in its efforts to improve the position of the American workmen, to defend proposals to decrease the length of the working day and week with utmost vigor. Management, on the other hand, in its attempts to forestall the tide has petitioned for public support by counter-arguments. Thus, the battlelines have been drawn and it is left to us to examine not the results of the contest, which have been reviewed in previous chapters of this thesis, but rather the ammunition used in the various engagements.

It may be noted that the arguments used in the hours issue usually have reflected the circumstances and environment within which the struggles were waged. As the standards of hours of labor in the United States have steadily decreased during the past century, the reasoning for and against shorter hours has mirrored this change. For the present it is sufficient to note that the arguments have become more economic in nature.

In structure this chapter is divided into three sections: 1) The Social Theories of the Hours of Work, 2) Labor's

Reasoning for Shorter Hours, and 3) Management and Shorter Hours.

I. The Social Theories of the Hours of Work

Among the theories which have been advanced concerning the hours of work, there are many of a social nature. Their importance, for our purpose, rests upon the fact that they have been used widely and their influence in shortening the hours of work has been great. Theories involving citizenship, culture, education, leisure, fatigue and health may be classified under this general heading.

During the early years of the American labor movement, the workers resorted to this type of theory; for it, better than any other, was more directly connected with the concepts of democracy with which the new nation was imbued. Nevertheless, this must not be interpreted to mean that these arguments have not been pertinent in more recent times. They have been important; but the economic implications of shorter hours have replaced them in relative importance as our economy has become more complex and the working day and week has become shorter.

In sociology it is a truism that "Leisure is a salient objective and a tangible measure of man's control over his environment."[1] Many of the contributions to social progress

1. Arthur James Todd, Industry and Society, (New York: Henry Holt and Company, 1933, p. 238.

have been a product of the two greatest forms of surplus: leisure time and capital. Since it is not our purpose to discuss capital, let us consider leisure and its relation to the hours of work.

During the period when the 14 and 15 hour day was in effect, the demand for shorter hours was based upon the worker's right to the enjoyment of leisure and the need for time to perform civic activities. Work from "sun to sun" was held to be incompatible with citizenship, for it did not afford workmen sufficient leisure for the consideration of public questions, and therefore, condemned them to an inferior position in society.[2] Furthermore, shorter hours were justified because they would allow the workers to devote more time to rational amusements, education and family duties. In turn, this useful leisure would result in a more intelligent, contented and efficient working population.[3] Thus, the early American labor movement urged more leisure as a means for the creation of a better social order.

Increased leisure, it was argued, not only made possible a better social order, but enabled the workers to enjoy improved health. This logic was transformed into a citizenship argument by stressing the need for a strong race for

2. Commons and Associates. History of Labour in the United States, (New York: The Macmillan Co., 1918) p. 170.
3. Thomas Sewall Adams and Helen L. Sumner, Labor Problems (New York: The Macmillan Co., 1907) p. 261.

military purposes.[4] We shall see later in the chapter that the proponents of shorter hours have urged leisure on economic grounds as well as for these social reasons.

Aside from the question of leisure, the social problem of hours is partly one of physical well-being, for there is undoubtedly a relationship between the number of continuous hours of work and the worker's health. Defenders of labor have been quick to point out that health is the one thing which the worker cannot afford to get along without. He simply cannot afford to be ill, for his very existence and that of his family may well depend upon his ability to work and to work without lengthly interruptions. Yet, they argue, modern industry has added greatly to the amount of illness among workers.[5]

Many contend that fatigue resulting from overstrain is a major factor causing illness among the working population. This view was forcibly presented by Frankfurter and Goldmark in their brief for the state of Oregon in the case of Bunting versus Oregon (1917) before the United States Supreme Court. They said that:

> "More recent investigations show that not only in the dangerous trades, but in all industries, a permanent predisposition to disease and premature death

4. Marion Cotter Cahill, Shorter Hours, (New York; Columbia University Press, 1932) P. 14.
5. E.E. Commins and Frank T. De Vyver, The Labor Problem in the United States, (New York; D. Van Nostrand Company Inc., 1947) p. 53.

> exists in the common phenomena of fatigue and exhaustion. This is a danger common to all workers even under good working conditions, in practically all manufacturing industries, as distinguished from the specially hazardous occupations."
>
> "In ordinary factory work, where no special occupational diseases threaten, fatigue in itself constitutes the most imminent danger to the health of the workers because, if unrepaired, it undermines vitality and thus lays the foundation for many diseases."[6]

Therefore, it has been argued that fatigue caused by working long hours will be injurious to the worker's health.

Although Frankfurter and Goldmark gathered most of their testimony from physicians, some economists have also subscribed to this argument. Irving Fisher, for example, states:

> "A reduction in the length of the workday would be a chief means of improving the vitality of workmen, as well as the worth of life to them. The fatigue of workmen is largely traceable to their long workday and serves to start a vicious cycle."[7]

Fatigue from long hours is further indicated by Frankfurter and Goldmark when after a comprehensive study of the relationship between fatigue and accidents, they concluded:

> "---- when the brain is fatigued, attention lags and reaction time is retarded. Hence after overexertion,

---

6. Felix Frankfurter and Josephine Goldmark, The Case of the Shorter Workday, (National Consumers League, 1916), Vol. 1, pp. 63-64.
7. Irving Fisher, Bulletin of the Committee of One Hundred on National Health, (The National Conservation Commission, 1909).

> fatigued workmen are subject to increased danger when reaction time is slowed and attention at its minimum."[8]

More recent evidence has been advanced by Mr. Kossoris in a Bureau of Labor Statistics study whereby he found that work injuries were reduced by as much as two-thirds when working hours were reduced from ten to eight.[9]

Therefore, workers have maintained that shorter working days and weeks will enable better citizenship, more education, better health, less fatigue and in turn a more contented working force. Even though this argument may be true, there remains the question of what hour schedule is optimum. Or in other words, what should the hour's schedule be in order to obtain these ends? Unfortunately there appears to be no definite answer to this problem. Mr. Kossoris, after his study, concludes that there is no such thing as an optimum hours schedule for all industry. Rather, he feels each industry must examine its own peculiar conditions and establish an hour's schedule accordingly. Nevertheless, in order to remove the answer from complete generalization, he contends that a five-day week and eight-hour day are better than a work schedule of longer hours.[10]

---

8. Felix Frankfurther and Josephine Goldmark, The Case of the Shorter Workday (National Consumers League, 1916, Vol. 1, p. 392.
9. Max D. Kossoris, Studies of the Effects of Long Working Hours, (U. S. Bureau of Labor Statistics, Bulletin No. 791-A, Oct. 17, 1944) p. 4.
10. Ibid., p. 2.

II. Labor's Reasoning for Shorter Hours

During the early years of the nineteenth century, the main arguments of American labor for shorter working hours revolved about leisure; namely citizenship, education and culture. But as circumstances changed, the basis for shorter hours was shifted. Different arguments were used to get a reduction from the 48 to the 40-hour week than had been used to reduce the 80 and 72-hour week. At any particular time, the arguments were presented in such a manner as to convince the public and employers that the proposed reductions were practicable as far as business operations were concerned, as well as desirable for the workers.

As workmen began to agitate for the ten-hour day, the health argument was introduced to supplement those of leisure and citizenship. Actually, the problem of fatigue was still a matter of contention as late as 1937, for the Brotherhood of Railroad Trainmen stated in a booklet urging the 6-hour day for all labor that:

> "The factors of fatigue----have a place in our considerations of efficiency, in direct relation to productivity. The public is beginning to realize that many railroad wrecks are due to overwork----. There is one way to clean the slate. Let men labor a reasonable time, by shortening the work day----."[11]

11. Shorter Workday, The Brotherhood of Railroad Trainmen, Cleveland, Ohio, March 1937, pp. 40-41.

Economic reasons have become more prominent in labor's bid for shorter hours as technology has advanced and productivity has increased. At first the economic basis for the shorter hours assumed a share-the work-argument; if hours were reduced more jobs would be available. When this argument was originally used the labor movement was willing to accept reduced hours with a proportionate reduction in wages on the assumption that the shorter day would decrease the supply of labor and thus enable workers in the long run to raise their wage rates. This type of reasoning was aptly expressed by the famed doggerel of Ira Steward:

> "Whether you work by the piece,
> Or work by the day,
> The longer the hours,
> The shorter the pay."[12]

In the latter part of the nineteenth century, George Gunton, in a publication that the American Federation of Labor entitled the "Eight-Hour Movement" said,

> "The adoption of an eight-hour system would tend to increase wages in two ways: first by reducing enforced idleness; second, by creating new wants, and raising the standard of living. The immediate effect of the general adoption of an eight-hour work day would be to reduce the working time of over eight million adult laborers about two hours a day. This would withdraw about sixteen million hours labor a day from the market without discharging a single laborer. The

12. Florence Peterson, Survey of Labor Economics, (New York; Harper and Brothers, 1947) p. 423.

> industrial vacuum thus created would be equal to increasing the present demand for labor nearly twenty per cent. ----In thus eliminating enforced idleness it would remove the first great obstacle to industrial reform and social progress."
>
> "Again the employment of two million new laborers would necessarily tend to increase the of consumers, and thereby enlarge the market for commodities to that extent. That such a result would tend to increase wages is very clear. Although wages would not necessarily rise in the same proportion that enforced idleness is reduced, all the influences would be in that direction.----Since enforced idleness is the most powerful obstruction to a rise of wages, by removing the unemployed, the direct influence of the social forces which tend to promote the rise of real wages would be increased."[13]

Argumentation of this type continued for many years, and there envolved no new basic reasoning, but a shift in emphasis is noticeable. If the period happened to be one of large scale unemployment, shorter hours were introduced as a means of bringing about fuller employment. While during an era of low wages, the higher wage theme was more highly emphasized in order to raise the standard of living.

In 1932, when the depression was almost at its lowest point, the Committee on the Shorter Workday in a report to the

13. George Gunton, Eight-Hour Movement, (Washington, D.C.; The American Federation of Labor, 1889) p.13.

annual convention of the American Federation of Labor contended that the basic problem facing the economy was a problem of plenty. They believed that this problem could be solved by striking a balance

> "---- between the increase in productive efficiency and the average labor hours so as to provide a wider and an adequate diffusion of work opportunities as well as to grant the workers larger leisure as a condition precedent to enhancing consuming power."[14]

Thus, employment and consumption were stressed in this particular argument. Also, it may be noted, leisure was mentioned, not as we have seen before in the social theories, but rather as a means of increasing demand. This increased demand born of more leisure would tend, so the argument develops, to bring consumption in line with the great advances made in production made possible by technological advancements.

Nevertheless, labor was no longer willing to accept shorter hours with a commensurate reduction in wages as it had at the time of Ira Steward. Furthermore, it should be realized that the higher wages theme was the more recent argument for the six-hour day and five-day week. All the arguments presented previously were progressively for the ten-hour and eight-hour day. The committee on shorter work day stated elsewhere in their report to the convention that

---

14. American Federation of Labor, Proceedings, 1932, p.283.

> "---- the advance in wage rates should keep steady step with expanding productive efficiency, not only as a matter of social justice and enlarged purchasing power, but also as indispensable to the future prosperity of the country. There is no other way. If we are to measurably match production and consumption, wages must go up and the hours of labor be progressively lessened as the only answer to the machine era in which we now live."[15]

This, then, was the foundation upon which the American Federation of Labor sought to combat the evils of unemployment and low wages. These problems, of course, were rampant during the depression years of the thirties when the above proposals were announced at the 1932 convention. During the 1937 convention, the committee on shorter workdays presented the same basic arguments as we have just reviewed. Referring the recommendations of the committee for a six-hour day and five-day week in order to overcome unemployment, President Green said,

> "Those who have a better remedy, let them offer it. We know they cannot advance a better remedy, and we shall continue to press for the acceptance of the six hour day and the five day week until it is universally applied."[16]

During the early months of 1949 our economy began to feel the pains of increased unemployment so characteristic of the

---

15. Ibid., p. 284.
16. American Federation of Labor, Proceedings, 1937, p. 82.

aftermath of a postwar boom. It is significant that unions once again began urging a shorter working schedule. The railroads and 17 non-operating brotherhoods negotiated a 40 hour week at no reduction in the workers 48 hour pay, effective September 1, 1949.[17] John L. Lewis served notice that his United Mine Workers wanted a 30 or 35 hour week in the new contract for July 1, 1949.[18] A permanent American Federation of Labor committee began active study of the feasibility of a new drive for a 30 hour week.[19] The United Electrical Workers, (C.I.O.), asked Congress to reduce the statutory work week when overtime had to be paid from 40 to 35 hours.[20]

The American labor movement's faith in the power of the shorter work-day and week to stem unemployment is staunch. In the past, shorter work schedules have been advanced as the means of giving workers the necessary leisure to perform their civic duties and to fulfill their family obligations. Moreover the worker's health has been closely linked to the length of the work-day and week. This is particularly true since the advent of the mass-production industries where monotonous repetitive machine paced jobs increase the worker's fatigue. In addition to these benefits, shorter work schedules have been

17. Boston Globe, March 23, 1949.
18. Ibid.
19. Ibid.
20. Ibid.

offered as a means of raising wages and improving the plane of living for the working people of our country. And finally, as we have seen, shorter hours have been proposed as a method of creating more demand through added leisure and, thus making consumption proportionate to production.

III. Employers and Shorter Hours

The history of the shorter hours movement in the United States has been replete with general employer opposition to reduced hours. Their argumentation against decreasing work schedules has taken different forms, but fundamentally the root of their opposition has been the fear that such action would lead to increased costs; and of course, increased costs, they have reasoned, would mean less profits.

When workmen began to agitate for a reduction of hours from the "sun to sun" schedule, carried over from agriculture, the masters objected to any shortening of hours on the premise that it would lead to corruption and vice. The masters argued vehemently that new-found leisure would corrupt workmen, and that vices such as drunkenness would grow at a quickening rate. Obviously, this type of reasoning was not on an economic plane, but rather moral implications of the question were stressed.

As a matter of fact, the moral aspects have continued to play a rather important role in employer opposition. This concern for the morals of working people has come to be called "paternalism" by many. Whether or not such "paternalism" is

justifiable is left to the discretion of the reader.

Employers and employer associations have also capitalized on quotations from the Bible to show that reductions in hours are unwarranted. Speaking against the five-day week in 1928, John E. Edgerton, president of the National Association of Manufacturers said:

> "Six days shalt thou labor and do all thy work. So reads the fifth of the great commandments and for sixty centuries it has been accepted as the divinely prescribed standard of economic effort. It is the perfectly fixed basis of human achievement and social contentment. It has served America admirably in building the greatest political, social and economic system known to history. And all through the Great Book the importance and sacredness of work are emphasized as life's first and continuing obligation."[21]

Although these moral and sometimes emotional arguments against any lessening of the hours schedule have been widely used by employers, they have also made use of economic reasoning. For example, during the thirties when the American Federation of Labor and other labor organizations were seeking the thirty hour week, the National Association of Manufacturers opposed such a program for the following reasons: 1) It would be impracticable; 2) It would cause prices to rise;

---

21. Lamar T. Beman, Five Day Week, (New York: The H.W. Wilson Company, 1928) p. 65.

3) It would cause the standard of living to be lowered; 4) It would create unemployment; 5) It would impose a shortage of skilled labor; 6) It would encourage foreign competition; 7) It would increase bankruptcies; 8) It would foster monopolies.[22] This association of manufacturers argued that a thirty hour week would be impracticable because such a program could not be carried out by many industries because it would interfere with production. They reasoned that prices would rise in this manner:

> "---- if wages are fifty cents an hour under a forty hour week, then under a thirty hour week wages would be approximately sixty seven cents per hour, an increase of one-third. If ten hours of labor are required on an article, the labor costs would be increased from five dollars to six dollars and sixty seven cents. The increase, of course, would obviously be felt in increased prices which all consumers would have to pay."[23]

This reasoning assumes that the weekly pay and worker efficiency would be the same after as before the reduction in hours. In turn, they argued the standard of living would be lowered because money wages would be the same, while prices rose, thus reducing real wages. Not only would the wage earners suffer, but the association felt that the standard of living of salaried

22. Work Less or Earn More? (You and Industry Series, Booklet No. 7, 1936, National Association of Manufacturers).
23. Ibid., p. 9.

workers, non-industrial workers and farmers would degenerate as well. In addition, they argued that unemployment would be increased on account of the reduction in purchasing power which would automatically reduce demand for outputs. Moreover, "In many industries the rigid thirty hour week would mean a shortage of skilled workers who require long training."[24] It was charged that foreign competition would be encouraged, for American factories would be forced by increased operating costs to charge higher prices while their foreign competitors could sell at lower prices. And finally, they predicted bankruptcies would result from such a program and this, the association concluded, would be widespread among smaller and weakly financed companies. Therefore, business would be left in the clutches of the larger enterprises and in this manner monopolies would be fostered.[25]

It will be noted that these arguments assume that there will be no increase in productivity, that production or total output is fixed. While labor has assumed that on account of technological progress and more efficient workers, production will increase, the employers, for the most part, have assumed just the opposite. This, it appears, is the crux of the entire argument. During the first World War and the years immediately following, the National Industrial Conference Board made a

24. Ibid., p. 12.
25. Ibid., p. 13.

number of studies of hours and output. An investigation of the shoe industry concluded that, under given operating conditions, maximum efficiency was impossible under less than a fifty two hour week.[26] Reports on the wool and silk industries fixed the point of maximum output of silk factories between fifty and fifty-four hours a week. For wool plants in general it was stated that reduction to a fifty-four hour schedule involved a loss of output.[27] These and other reports by the board showed that a reduction of hours of labor would necessarily impose a reduction in output. These studies indicate the basis upon which employer's reasoning concerning shorter hours has been founded.

In 1935 the Black Thirty-Hour Bill was bitterly opposed by management and the Retailers National Council appeared before the Senate Judiciary Committee and declared

> "That the bill would deal a body blow to recovery through its adverse effects on retail trade and consumer purchasing power. The bill, the council predicted, would increase the costs of goods to the public by at least twenty five per-cent and would freeze all weekly incomes, thus penalizing higher grade employees."[28]

When the American Federation of Labor demanded that all

26. National Industrial Conference Board, Research Report Number 7, (Boston, 1918)pp. 50-52.
27. National Industrial Conference Board, Research Report Number 12, (Boston, 1918) pp. 44-46.
28. Boston Transcript, Feb. 16, 1935.

industry be placed on a thirty-hour basis in 1934, Henry I. Harriman president of the Chamber of Commerce of the United States opposed such a demand because the increased leisure would lower the plane of living and as such, he felt would be a step backward.[29]

The New York Times in an editorial in 1938 reflecting the views of management on the forty-hour week stated:

> "Implicit in a forty-hour week as a present objective is the fallacious idea that there is a fixed volume of production to be turned out that there is therefore a fixed number of working man-hours to go around; and if individual hours are restricted, there must be a larger number of jobs. Actually, in the long run a standard working week reduced below the point necessary to maintain health and efficiency can only mean reduced production - in other words, a smaller supply of goods and consequently lower living standards all around the circle."[30]

Although most of the arguments thus far quoted have been taken from management's debate against the six-hour day and five-day week, similar arguments were used against the eight-hour day, the forty-eight and forty-hour week. It has been a characteristic of the employers to be decidedly repetitious in their arguments. This is probably due to the fact that they

29. Boston Transcript, Dec. 8, 1934.
30. New York Times, May 26, 1938.

have always opposed hours reductions on the same basic grounds, namely output will decrease and costs will increase.

In actual practice, there have been a few firms who have not only accepted reductions in hours of work, but have claimed advantages were gained by such action. For example, the Kellogg Company of Battle Creek, Michigan after instituting a six-hour day and employing four shifts per day instead of the former three eight-hour shifts reported favorable results. The firm discovered that the overhead decreased, production increased, the number of employees increased by 20 per cent, and the base rate of the lowest paid employees was increased by one third. However, day wages for the higher paid workers were reduced, although their base rate was increased one eighth.[31] Nevertheless, the company pointed out that although the reduction had proved beneficial to their firm on account of its continuous process operations, it would not be practicable for every type of business.[32]

Another example of voluntary reduction of hours on the part of an employer is the famous case of Henry Ford. In 1928 he made the five-day week the basic work week for his employees. At the time, this was a sensational development and caused much comment. Mr. Ford felt that the five-day week was a

31. New York Times, April 26, 1931.
32. Ibid.

natural outgrowth of increased production and that the added leisure would stimulate demand and, thus, enhance consumption.[33] Nevertheless, most employers have regarded hours of work reductions at most to be relief expediencies during a depression period, as the nineteen thirties.

Although there are a few examples of employers granting a reduction of hours to their workmen, for the most part, opposition has been the rule rather than the exception. Throughout the history of the labor movement in the United States, the employers have resisted all shorter hour movements on that basis that leisure would create vice, output would be lowered, costs would rise and that in general any reduction in hours would be detrimental to the economy.

Summary and Conclusion

As we know, the hours of work in the United States have been steadily reduced throughout the last hundred years. Nevertheless, the general reduction has not been gained without struggle nor without argumentation. Workmen have sought more leisure in order to improve their lot as individuals and as citizens and also to enhance their efficiency as workers. Employers have countered that added leisure would reduce efficiency and impair the morals of workmen. As a matter of fact, it is not necessary to repeat the arguments offered by both groups. Obviously, each side is convinced of its righteousness.

33. Lamar T. Beman, Op. Cit. p. 55.

However, we should recognize the fundamentals of the argumentation. First and foremost is the question of productivity. To my mind, this can only be determined within the individual firm by trial. This, at least, it seems may be determined in a scientific manner. In the next chapter we shall discuss the relation between productivity and shorter hours and reach a more definite answer to this basic problem. Linked directly to the resultant productivity of shorter hours is the prospect of employment and output and, thus, the whole problem revolves around this concept.

And finally, the moral and qualitative aspects of shorter hours are not easily defined. Many examples could be cited to bolster both labor's and management's arguments. These appear to be a device to win public sympathy and must be accepted with this in mind.

CHAPTER IV

Economic Implications of Shorter Hours

On account of the importance of the effect of shorter hours upon productivity, it is of prime importance for us to examine the relationship between the two. While seeking to establish a casual relationship between the hours of work and productivity, there is no attempt to diminish the importance of other factors such as innovation, managerial efficiency, or capital investment and their effects upon productivity. Nevertheless, it is not within the scope of this thesis to analyze these factors.

As a matter of fact, the second part of this chapter consists of a statistical and theoretical treatment of the distribution of the gains of increased productivity. The increasing productivity which our economy has experienced has been due to many causes, including innovations, managerial efficiency, capital investment and in part to increased efficiency of labor. Distribution of this increased productivity is important, for it may result in more leisure and effect employment and output.

Therefore, this chapter is divided into two sections. The first part is entitled: Productivity and the Hours of Work and part two is: The Distribution of the Gains of Increased Productivity.

I. Productivity and the Hours of Work

In an attempt to establish a norm by which we may judge the advisability of shortening the hours of work, it is necessary to examine the relation of productivity to the hours of work. Although there are other criteria such as the social advisability of shorter hours, it is the purpose of the first part of this chapter to examine the former relationship.

In order to study this relationship logically, it must be noted that the time element is only one factor among many and cannot be wholly isolated from the large number of others, all of which may have a bearing upon productivity. To arrive at sound conclusions, therefore, it is necessary to recognize all of the factors involved. Among these factors are: the character of the work performed, wages and systems of wage payment, personnel of the workers, and changes in the production function. Also important considerations are the attitudes of the workers and local labor conditions. The ideal, of course, is to isolate all these other factors and examine the effect of changes in hours of work alone on productivity. A plant, therefore, cannot be studied, if, during the various periods to be surveyed, hours were not maintained consistently at fairly fixed and definite schedules. During these periods the operations performed by the workers to be studied must remain essentially unchanged and the number of identical workers involved must be reasonably large. Obviously, if the nature

of the work changes materially, and if the composition of the work is changed, factors other than hours could be responsible for the changes observed. Moreover, output has to be measurable, and records available on hours and output for the groups to be studied.[1] The task of finding plants which fulfill the necessary requirements is difficult, for most firms are undergoing one type of change or another. For example, Dr. Kossoris, in his study of the hours of work and output, found that only fifty plants out of eight hundred examined met the necessary qualifications.[2] Not only was this true, but he discovered that the lack of records was also an impediment to research.[3]

In addition to these requirements a survey of hours of labor that weekly working schedules must have been altered substantially, and that the contrasting schedules must have been in effect long enough, preferably six months or a year, to permit a valid comparison of worker performance for two distinct levels of hours.

Before we review the results of the most pertinent studies, we must define some of the terms which are used. The basic means of obtaining a measure of efficiency by Dr. Kossoris was by dividing the total weekly output by the total hours

1. Max D. Kossoris, Hours of Work and Output, (U.S. Bureau of Labor Statistics, Bulletin No. 917, 1947) p. 7.
2. Ibid.
3. Ibid.

actually worked. Of course, output is the composite result of average hourly output and the number of hours actually worked.[4] And finally the output input ratio was secured by dividing the percentage change in output by the percentage change in hours.

In the first study by Dr. Kossoris, the effects of changes in hours on output during the 5 day week were examined.[5] The results showed that in the case of thirty-nine men doing machine-controlled pace, moderately heavy work that a twenty-five percent increase in hours (from forty to fifty hours per week) brought an increase of twenty-three and one half percent in output. Fifty men doing the same work under the same conditions were found to increase their output eighteen percent with the same increase in hours.

In these two groups, the output-input ratios show, for each additional work hour 0.9 and 0.7 of the hourly output at the lower level of hours resulted. In both these studies, operations were machine-paced, so that the hours of actual machine time corresponded fairly closely to the actual working time.

In eleven other cases of this particular study where women worked at an operator-controlled pace, the evidence showed that output depended primarily on the speed and endur-

4. Ibid. pp. 61-62.
5. See Appendix, p. 102.

ance of the operators. In general, the data procured indicated that every 3 additional hours of work per week resulted in an equivalent output increase of only 2 hours.[6] From these studies it may be concluded that for men at moderately heavy work where the work pace is controlled by the machine, the increase in output is nearly proportional to the increase in hours. Nevertheless, for women, at light operator-paced operations, the effect of lengthening daily hours from 8 to 9 or 9½, and weekly hours from 40 to 46 or 47, is a drop in weekly efficiency of 4 to 4½ percent.[7]

Following the above study, Dr. Kossoris examined the effects of increasing work days from 5 to 6 with no change in daily hours.[8] He discovered that the effects on efficiency of this lengthening in weekly hours in the moderately heavy work groups were nearly evenly divided: in three instances the addition of the sixth day resulted in decreases of efficiency, and in five it resulted in increases. The changes were not markedly large in either group, and he concluded that the addition of a sixth day without increasing daily hours had no adverse effect on efficiency. The same result was true of the seven cases where light work prevailed.

For the entire fifteen cases it was determined that output

---

6. Max. D. Kossoris, Hours of Work and Output, p. 10.
7. Ibid. p. 11.
8. See Appendix, p. 103.

during the longer workweek increased directly with the increase in weekly hours. Thus, these studies indicate that the addition of a sixth day had no disadvantageous effect on output, provided daily hours were held to 8 per day.[9]

After the above study, Dr. Kossoris examined the effects on output when the workdays were decreased from 6 to 5 with again no change in daily hours.[10] Under these conditions, it was found that efficiency increased in all eighteen cases which included heavy, moderately heavy and light work. Moreover, weekly output also increased where the work was heavy. The general conclusions which may be drawn from the five day week versus the six day week with no changes in daily hours are these: there is no question, except for heavy work, a regular 6 day week results in greater output than is produced during the five day week. The case studies made by Dr. Kossoris indicate that, as a rule, light operations can be carried on during the 6 day week at the same efficiency as during the 5 day week, and that the additional output is almost in direct proportion to the additional hours worked. On the other hand, when hours are reduced after a sixth day had been worked for a protracted period of time, the 5 day week proved more efficient in terms of hourly output than was the 6 day week.[11]

---

9. Max D. Kossoris, Hours of Work and Output, p.14.
10. See Appendix, p. 104.
11. Max D. Kossoris, Hours of Work and Output, p. 14.

In another study in which 22 cases were examined, it was found that with increases in daily and weekly hours for a six day week that more output resulted, but the increase in weekly hours rarely was matched by a proportionate increase in output.[12] The only instances in which this did occur involved instances of managerial improvements. Generally, the ratio of the equivalent of output hours gained to additional hours worked was about 0.6 or 0.7, indicating that 3 hours of work were required to produce the output of 2 hours at the shorter schedules. In terms of labor cost, at overtime rates, this means about $4\frac{1}{2}$ hours pay for 2 hours of additional output.[13]

As a general conclusion to these studies made by the Bureau of Labor Statistics it may be said that the longer schedules resulted in larger output. In only a few instances were lengthened hours so long that no increase in output resulted. However, the longer hours yielded higher output at a regressive rate. As hours went up, the proportionate return decreased, and unit labor cost increased. Thus, as hours were decreased, efficiency improved and in most cases output per hour or productivity increased. From these studies, Mr. Kossoris concludes that:

> "---everything else being equal, the eight hour day and forty hour week are best in terms of efficiency ----and that higher levels of hours are less satisfactory."[14]

Aside from these studies made by the Bureau of Labor

12. See Appendix, p. 105.
13. Max D. Kossoris, Hours of Work and Output, p. 26.
14. Ibid. p. 1.

Statistics, the National Industrial Conference Board has also conducted research in the relationship of hours of work and output. Obtaining its data by sending questionnaires to individual firms, the Board made studies of five industries, boot and shoe manufacturing, cotton manufacturing, metal manufacturing, silk manufacturing, and wool manufacturing. In an effort to isolate the effects of shorter hours alone on productivity, they required information concerning any other changes that may have taken place during the period considered. For example, each firm was asked whether or not they had made any revisions in piece rates, in hourly rates of time workers, in method of wage payment, in type or speed of machinery, in number of machines tended by one operator, in standard or required production, in regulations affecting punctual or full-time attendance and any other important changes.[15]

It should be noted at this point, that the National Industrial Conference Board was primarily interested in ascertaining the effects on total weekly output by shortening hours. Thus, its studies do not attempt, for the most part, to make any measurement of the changes in hourly productivity. As a matter of fact, some of their studies appear to be unsuitable for their intended purpose, for there are other variables present besides the hours of labor.[16] In the wool, cotton, and

15. National Industrial Conference Board, Research Report Number 27, (Boston, 1920) p. 15.
16. Ibid,, pp. 13-14.

silk industries, climate conditions affect the ease of making cloth and similar climatic periods were not always compared. Furthermore, during the periods studied there were changes in styles; this was true of the boot and shoe industry as well. Thus, although similar products were produced in each period examined, the goods should have been identical in order to reach legitimate conclusions. Moreover, to my mind, some of the intervals under consideration were far too short to allow the real effects of shorter hours to show clearly. In some instances time periods of only six weeks or two months were compared.

Recognizing the above inadequacies, it has been necessary to exclude many of the Board's studies and to utilize only those which most nearly fulfill the requirements of an honest comparison. Among the studies which are pertinent is that of a large broad-silk mill which reduced hours from fifty-five to fifty per week in 1916 and found that a 9.1 per cent reduction in working time was accompanied by an increase of 7.3 per cent in hourly productivity.[17] Thus, in this particular case the shortening of hours brought about increased productivity upon the part of the workers.

In a comparison of the results of reducing the work week

17. National Industrial Conference Board, Research Report Number 16, (Boston, 1919) p. 31.

from fifty-four hours to fifty by a machinery establishment in 1912, it was determined that hourly output was increased by 8.5 per cent. In this particular study the total number of employees included was two hundred and sixty.[18]

The 7500 employees of the W. H. McElwain Shoe Company worked fifty-five hours per week in 1916, and this was reduced to fifty-two hours per week in 1917. The seven shoe factories of this company, it was found, experienced an increase in productivity under the shorter schedule. The daily productive unit per employee rose from 8.91 under the longer schedule to 9.00 for the first two months under the shorter schedule and to 9.02 for the succeeding two months, an increase of 1.3 per cent.[19]

From these case studies it is obvious that shortening the hours of work has increased productivity. As has been emphasized previously every effort has been made to divorce from these surveys any other factors effecting productivity. Thus, it is reasonable to assume the validity of the conclusions.

Aside from these studies concerning American productivity and the hours of work, there have been similar studies in other countries which confirm our finding. H. M. Vernon, a member of the British Health of Munitions Workers Committee, estab-

18. National Industrial Conference Board, Research Report Number 18, (Boston, 1919) p. 22.
19. National Industrial Conference Board, Research Report Number 7, (Boston, 1918) p. 34.

lished the fact that output of workers in the munitions industry employed on a fifty-five and one half hour week was "considerably greater" than on a sixty hour week basis.[20]

Other studies made at the Zeiss Optical Works indicated that a reduction of hours from nine to eight, with all other factors remaining constant, induced an increase in productivity. Furthermore, at the Engis Chemical Works in Belgium, workers employed on an eight hour shift produced as much as they had under a twelve hour shift.[21]

Not only is it true that a reduction in the hours of work have contributed to increased productivity, but all factors which affect output have combined to increase the productivity of our nation. Actually the increase in our national productivity has been little less than phenomenal.[22] An index of output per man-hour of selected industries (1923-1940) indicates that productivity had risen sixty per cent over the base period, 1923-1925.[23]

Thus, not only has reduction in the hours of labor caused increased productivity, but aside from this direct cause and effect relationship, productivity per man-hour, due in part to

---

20. Philip Taft, Economics and Problems of Labor, (New York; Stackpole and Heck, Inc., 1948) p. 303.
21. Ibid.
22. E.E. Hagen and N.B. Kirkpatrick, The National Output of Full Employment, American Economic Review, Sept. 1944.
23. See Appendix, p. 106.

more efficient management and technological advances has increased at a rapid pace. There arises from these facts the theoretical problem of the distribution of gains of increased productivity. Therefore, the second part of this chapter is devoted to this consideration.

II. The Distribution of Gains of Increased Productivity

As a result of increased man-hour productivity in industry, it is of practical and theoretical importance to dedicate a portion of this thesis to the distribution of the gains of increased productivity. It is of practical importance because such a distribution mirrors the results of a capitalistic economy and affects all individuals according to their status as a worker, consumer, or owner of productive resources. Its theoretical importance revolves around the possibility that a study of the distribution of the gains of increased productivity may lead to a theory of employment or, at least, to a segment of such a theory. Therefore, we shall first study briefly the distribution of gains statistically and in a later section examine the theoretical implications.

Spurgeon Bell, under the auspices of the Brookings Institution, has made an investigation of productivity, wages, and national income. The purpose of the study was to examine the "relation between the expansion of productive efficiency and the income of the wage earning population."[24] For our purpose,

24. Spurgeon Bell, Productivity, Wages, National Income (Washington, D.C.; The Brookings Institution, 1940) p.4.

the study is important because he traces the distribution of gains of increased productivity to the several participants in the productive process and also to the consuming public. In the past, most economists, assuming perfect competition, believed that all the gains from increasing productivity would automatically be bestowed upon the consumers in the form of lower prices. With the rise of "big business" and the consequent monopolistic aspects which have entered the economy, there has arisen a strong belief that all these gains are appropriated by those who furnish capital. On the other hand, the relatively recent growth of power on the part of labor has indicated to many that labor has become the recipient of the gains of increased productivity. Setting aside these notions, Spurgeon Bell has made a statistical study of business data in order to obtain the facts concerning the effects of increasing productivity upon the several potential beneficiaries.[25]

It was determined in the study that from 1923-24 to 1936-37 that productivity increased 50 per cent in manufacturing, 89 per cent in mining, 43 per cent in railroads, and 11.1 per cent in the electric light and power industry.[26] This tremendous increase in productivity meant that progressively less labor was required to obtain a given volume of output. Bell

25. Ibid., p. 5.
26. Ibid., p. 167.

attributes this increase in productivity to the installation of improved capital instruments and to organizational changes which have economized the use of labor.[27] Actually in some cases, greater efficiency on the part of labor due to shorter hours has contributed to the process. It must be remembered that it is impossible to measure statistically the precise extent to which any one of these factors contributes to increased productivity. The available data tell us only that the man-hours required to perform a given amount of work has been greatly decreased.

In his analysis, Spurgeon Bell discovered that the gains of increased productivity which accrued to labor, during the period 1923-1924 and 1936-1937, were chiefly in the form of increased leisure.[28] Although it was determined that workers received progressively higher rates of pay, aggregate money wages nevertheless declined. In the manufacturing industries, railroads, mineral industries, and the electric light and power industry, the combined hourly earnings increased over the period (1923-1924 and 1936-1937) by 11.3 per cent, ranging from 1.7 per cent,in the mineral industries to 30.2 per cent in the electric light and power industry. It is thus, "---apparent that a substantial portion of the gains was expected to accrue directly to the benefit of labor."[29]

---

27. Ibid., p. 174.
28. Ibid., p. 176.
29. Ibid., p. 177.

Nevertheless, the man-hours of employment declined, and, hence, the aggregate money earnings actually decreased.[30] In some instances, workers received less because of the shortening of the work week to allow more workers to be employed. Of course, in such instances, the gains accrued were in the form of more leisure. Bell estimates that the imputed gains to labor, considering the rates of pay as well as the hours of work, amounted to 1,086 million dollars in manufacturing, 150 million dollars in railroads, and 50 million dollars in the electric light and power industry.[31]

As far as earnings on capital investment were concerned there was a decline over the period as a whole. The amount of return on the total capital invested in manufacturing, railroads, and electric light and power industries combined declined 392 million dollars. This amounted to a decrease of 7.7 per cent. Bell states that the rate of return on capital, which includes interest, rent, dividends, and undistributed earnings, decreased from about 6.4 per cent in 1923-1924 to approximately 5.6 per cent in 1936-1937.[32] Had there been no increase in productivity the decline in the return to capital might have been much greater.

The decline in both aggregate earnings and in aggregate wages is explained by Bell to be the result of the failure of

---

30. Ibid., p. 173.
31. Ibid., p. 177.
32. Ibid.,

output to increase in hand with productivity.[33]

The gains distributed to the consumers on account of increased productivity were in the form of real goods and services. In other words, the consumers got more goods for the same amount of money. Bell measured the gains accruing to consumers in connection with the purchase of manufactured commodities to be 5,055 million dollars during the period 1923-24 to 1936-37. Likewise during the same interval the consumer gains in railroad service amounted to 556 million dollars. And the gains accruing to the users of electric current amounted to 463 million dollars.[34] It should be noted that wage and salaried employees and contributors of capital in their capacity as consumers showed in these gains. Furthermore, in many cases the quality of the commodity or the service rendered was improved.

Thus, we have noted the results of the study by Spurgeon Bell, and it gives us an idea of the actual distribution of the gains of increased productivity during the period under consideration. Now there remains the theoretical problem of the distribution of these gains.

The theory of the distribution of the gains of increased productivity concerns itself primarily with the effects which such distribution will have upon employment and output. Basic

33. Ibid,, p. 178.
34. Ibid.

to the theoretical discussion of the problem, there are certain assumptions which we must make. First, we assume that the firm has a price policy. Secondly, we assume that the firm has some control over wage rates. Thirdly, we assume that the firm is in long run equilibrium, and thus all factors are free to vary. Fourthly, we assume there is an increase in productivity which causes costs to fall 10 per cent. And lastly we assume that there is no change in prices. It is very important to note that there is no assumption concerning the maximization of profits. Furthermore, perfect competition is eliminated because if that were true, all the gains of increased productivity would accrue to the consumers in the form of lower prices.

At the outset let us consider the results, if all the gains of increased productivity are distributed to the workers. As long as we remain within the frame work of our model, such a distribution with a 10 per cent increase in productivity will cause employment to fall by 10 per cent while wage rates are increased by 10 per cent. Thus, the total payroll will remain the same, the volume of sales will remain the same and profits are the same as before. The attempt to pass all the gains to the workers results in a decrease in employment, either in the form of increased leisure (shorter hours) or in unemployment because the same output and price is maintained.[35] It should

35. Norman J. Silberling, The Dynamics of Business, (New York; Mcgraw-Hill Book Company, Inc., 1943) p. 510.

be further noted that these conditions would allow no increase in total purchasing power because the 10 per cent increase in wage rates is exactly offset by unemployment. In other words the increased purchasing power in the hands of employed workers is completely counteracted by the decrease in purchasing power suffered by discharged workers. Therefore, there would be no possibility of increased employment in other areas due to the effects of more purchasing power.

Now let us examine the results when all the gains are distributed to the consumers. Under these circumstances necessarily there would be a 10 per cent fall in the price of the goods because this is the method by which the gains may be distributed to the consumers. At the same time, wage rates would remain the same as would profits. Depending upon the elasticity of demand for the product, employment would decrease, increase, or remain constant, and this is also true of the payroll and the volume of sales. If the demand for the product were highly elastic, the volume of sales would increase and in this manner employment and output would be stimulated.[36] It is also possible that the demand faced by a particular firm could be inelastic, and a price decline would not call forth an increase in output sufficient to maintain employment. Thus, the results of the distribution of gains to consumers depends

36. Sumner H. Slichter, Implications of the Shorter Hour Movement, Proceedings of the Academy of Political Science, Jan., 1934, p. 442.

upon the elasticity of demand for the product.

Although a reduction in price may not always bring an immediate stimulus to demand in the firm, there can be no doubt that a price reduction is a "positive inducement" to the increase of demand for a product.[37] Furthermore, if the price decline did not bring about an increase of sales for the firm, the increased purchasing power would be available for purchasing other commodities, stimulating employment elsewhere.

Lastly, let us examine the results if all the gains are absorbed by the owners of the firm, or capital. In this case, the gains accruing from a 10 per cent reduction in costs would mean that while wage rates, prices, and volume of sales would remain the same, employment would fall by 10 per cent as would the payroll. If we define profits as the difference between total revenue and total costs, then a 10 per cent decrease in costs will increase profits. By whatever that actual amount of decrease happens to be, in this particular case, output remains the same and employment declines. Purchasing power would be unchanged because the gain by capital would be accompanied by an equal loss to the discharged workers.

---

37. Spurgeon Bell, Productivity, Wages, National Income p. 183.

DISTRIBUTION OF THE GAINS OF INCREASED PRODUCTIVITY *

All the gains to:	Workers			Consumers		Owners
	Employ-ment	Wage Rates	Payroll	Prices	Volume of Sales	Profits
1. workers	-10%	+10%	Same	Same	Same	Same
2. consumers	+?	Same	+?	-10%	+(>10%?)	Same
3. owners	-10%	Same	-10%	Same	Same	+(>10%?)

* So that costs fall by 10 per cent.

In conclusion, this analysis indicates that the distribution of gains resulting from increased productivity either to workers or to owners entirely is not desirable as far as employment and output are concerned. Only when the savings are distributed to the consumers in the form of lower prices, and if the demand for the product is elastic, employment and output will increase. Furthermore, from this analysis it may be concluded that workers and the owners of capital will in the long run benefit from such distribution. Obviously, labor is interested in the expansion of aggregate production and aggregate employment, and Bell concludes from his statistical analysis that when the total volume of production increases, the wages share expands, and that when total production

declines, the share of labor decreases. Capital, too, will benefit, for a reduction in prices which stimulates an expansion of demand is conducive to the greater employment of capital and to an increase in the demand for additional capital.[38]

38. Ibid., p. 184.

CONCLUSIONS

From the first chapter of this thesis it is obvious that the hours of work in the United States have been substantially reduced since the first strike for the ten-hour day in 1791. Commonly, the system of work was from "sun to sun" as taken from agriculture. Gradually, as the labor movement gained strength, its power is reflected in the reduction of hours. This struggle which was at first centered on the ten-hour day was not without toil and bloodshed. Although all workers agreed that the hours of work should be shortened, there was little harmony concerning the methods of attaining the goal.

As the struggle for the ten-hour day passed into history, and the eight-hour movement took its place, the problem for the labor movement was still one of method. Should shorter hours be legislated into existence, or should economic forces be applied directly against the employers to gain shorter hours? The American Federation of Labor stood staunchly by the economic method. However, gains were registered by both methods.

With the advent of World War I, hours of work were shortened perceptibly. After the war, gains continued to be made, but to a less degree. When the depression of 1837 gripped the country, the hours of labor were reduced greatly as the "spread the work" attitude gained strength. However, the threat of

war and, finally war itself forced an increase in the actual hours of work so that the huge material needs could be met. At the war's end, a reduction of hours may be noted, but it was not large on account of the pent up demand for peacetime goods and services.

The reasoning of management and labor concerning shorter hours has been both social and economic in nature. Workman have sought more leisure in order to improve their lot as individuals and as citizens; to enhance their efficiency as workers, to reduce sickness due to fatigue, to stem unemployment, to increase consumption in line with production and to counteract low wages. On the other hand, management has countered that increased leisure would lead to vice; it would cause prices to rise; it would lower the standard of living; it would create unemployment; it would impose a shortage of skill-labor; it would encourage foreign competition; it would foster monopolies; and increased leisure would increase bankruptcies. Although management, in general, has opposed reductions in the hours of work, there have been some instances where the reductions have been voluntary. Henry Ford is the notable example.

Underlying the theories for shorter hours advanced by labor, is the belief that shorter hours will increase productivity. Management, has based its arguments on the opposite as-

sumption, that productivity will be lowered with a decrease in hours. Thus, in order to evaluate these fundamental assumptions, the last chapter of the thesis was dedicated to productivity and the hours of work.

Finally, the moral arguments concerning shorter hours are not easily defined. Many examples could be cited to strengthen both labor's and management's arguments. These moral aspects appear to have been a device with which to win public sympathy and should be accepted in their proper light.

Although it is not possible to state exactly what the optimum work week should be as far as productivity is concerned, certain conclusions may be drawn from the relationship of productivity to the hours of work. Granted that it is difficult to ascertain the effects of hours of work alone on productivity, it may be concluded that in most cases reductions in the hours of labor have caused productivity per man-hour to increase in certain firms which have been studied. Aside from this fact, productivity per man-hour, due to all causes has increased greatly in the United States. Thus, the next problem which arises is that of the distribution of the gains of increased productivity.

This study indicated that the distribution of all gains of increased productivity either to workers or owners not desirable as far as employement and output is concerned. Only

when the gains are distributed to the consumers in the form of lower prices, and if the demand for the product is elastic, will employment and output increase. However, the owners of capital and the workers will benefit from such distribution because labor always seeks employment and increased output will enhance the demand for capital and increase its uses.

APPENDIX I

Problems Involved in the Computation of an Index of Hours

In order to complete the study of the shorter hour's movement in the United States, it is appropriate that we examine index numbers of hours and point out the problems involved in their computation. To gain an understanding of these problems, it is necessary to define what is meant by an index number which make it a useful statistical device.

An index number may be defined as a statistical device used in measuring relative changes or difference in the magnitude of statistical groups or aggregates of variables.[1] An index number, then, is used to compute the average percentage change of a statistical group from one point of time to another. Usually, index numbers are thought of in connection with prices, but an index number can be calculated for wages, for quantities of goods imported or exported, and, in fact for any subject matter involving divergent changes of a group of magnitudes.[2] Thus, it is possible to compute an index of the hours of work.

In order for an index number to be of practical use there are several qualifications which the data must fulfill. First,

1. Robert Emmet Chaddock, Principles and Methods of Statistics, (New York: Houghton Mifflin Company, 1925) p. 175.
2. Irving Fisher, The Making of Index Numbers, (New York: Houghton Mifflin Company, 1922) p. 3.

the relative change which is measured over time should be for the same commodity or article at each period of time.[3] Thus, if we were computing a price index of wheat, we would have to be careful to measure the same grade and quality of wheat for each period. If different grades were used in each time period, the same item would not be the subject throughout. In such a case, the index would serve no useful purpose. Not only should the data be comparable, but they must be accurate and the sample representative.[4] Accuracy is an obviously important qualification, and there is no need to amplify this requirement. Since the data for index numbers are usually obtained from samples, a sample should be obtained that behaves like the group from which it is drawn. That is, in selecting the representative commodity for each group, the primary object is to choose a commodity, the behavior of which is fairly typical of the group from which it is selected. Next, the selection of a base is of moment in the computation of index numbers. It is customary to select some period of time as a base for comparison. A month is too short a period to use as a base period, since any one month is likely to be unusual on account of accidental or seasonal influences. A year, however, is often used. Nevertheless, the base year should be one that is "normal." Therefore, the year used as

3. Warren Milton Persons, The Construction of Index Numbers, (New York: Houghton Mifflin Company, 1928) p. 59.
4. Frederick E. Croxton and Dudley J. Cowden, Applied General Statistics, (New York: Prentice-Hall, Inc., 1939) p. 582.

a basis of comparison must be one that during which there is relatively little fluctuation.[5]

Finally, the choice of weights is an important factor in the computation of index numbers. If each item in the series is not given its proper weight, the resultant index number may be either too large or too small. Therefore, each item must be properly weighted so that the index number will be able to represent its proper importance.[6]

Having defined index numbers and outlined the qualities of a good index number, we now examine the problems peculiar to the computation of index numbers of the hours of work and study some indices which have been computed.

At first, one might imagine that an index number of hours could be easily computed because an "hour" is a unit easy to define and agree on. Nevertheless, this is not the case, because there are many other factors besides the unit of time which enter such an index. As has already been stated, the same commodity or article should be used for each period of time. Thus, in index numbers of the hours of work the content of the job should be identical throughout the series. But this is impossible to assume, for as changes in the production function occur overtime, the content of jobs changes accordingly. In almost every industry that can be enumerated, the

5. Ibid., p. 586.
6. Edmund E. Day, Statistical Analysis, (New York: The Macmillan Company, 1925) p. 351.

content of the jobs within it has altered with the passing of the years. To mention but a few, carpenters have rapidly become assemblers with the advent of the prefabrication technique in building. The diesel engines on our railroads have changed the composition of the work of engineers and firemen. The glass industry has witnessed the transition from the human glassblower to machines performing the same work. The content of the work in the automobile industry has been altered considerably with the advent of the assembly line production method. It would not be difficult to find similar changes in any industry. Thus, the content of the job is not identical throughout an index numbers of hours of work over a period of time.

Not only is this true, but if an index adheres to a given list of jobs, as time passes new jobs will be omitted. On the other hand, we find many indices of hours are computed for industries as a whole. In this instance, as different jobs are conceived and others dropped within the industry, there can be no attempt to maintain a given list of jobs under these circumstances. Therefore, the initial problem in the computation of an index of hours is the problem concerning the ability to attain identical job content and identical jobs.

Furthermore, it is impossible to determine the intensity of work from an index of hours. It is purely a quantitative

measurement and contains no quality elements. Thus, although an index of hours may show a reduction in hours worked this does not necessarily mean that work is less arduous. For example, although the hours of work have been reduced in the automobile industry, this does not indicate that the assembly line technique has made work easier than was the case under longer hours. Perhaps, the tempo of work has been speeded up.

Other inadequacies of indices of hours include the fact that they do not inform us what the pattern of work has been. Thus, the data may include hours of split shifts, swing shifts, or day and night employment. This could easily effect job content and intensity of work. Moreover, if the index happens to be one of daily hours, the length of the work-week is completely unknown. On the other hand, it is not always possible to discover, from data showing the number of hours worked per week, the number of days worked. Thus, a fifty-five hour week could mean a five-day week of eleven hours per day or a six-day week of ten hours per day.[7]

With this general background of the problems involved in the computation of index numbers of hours, let us now examine some individual indices of hours.

---

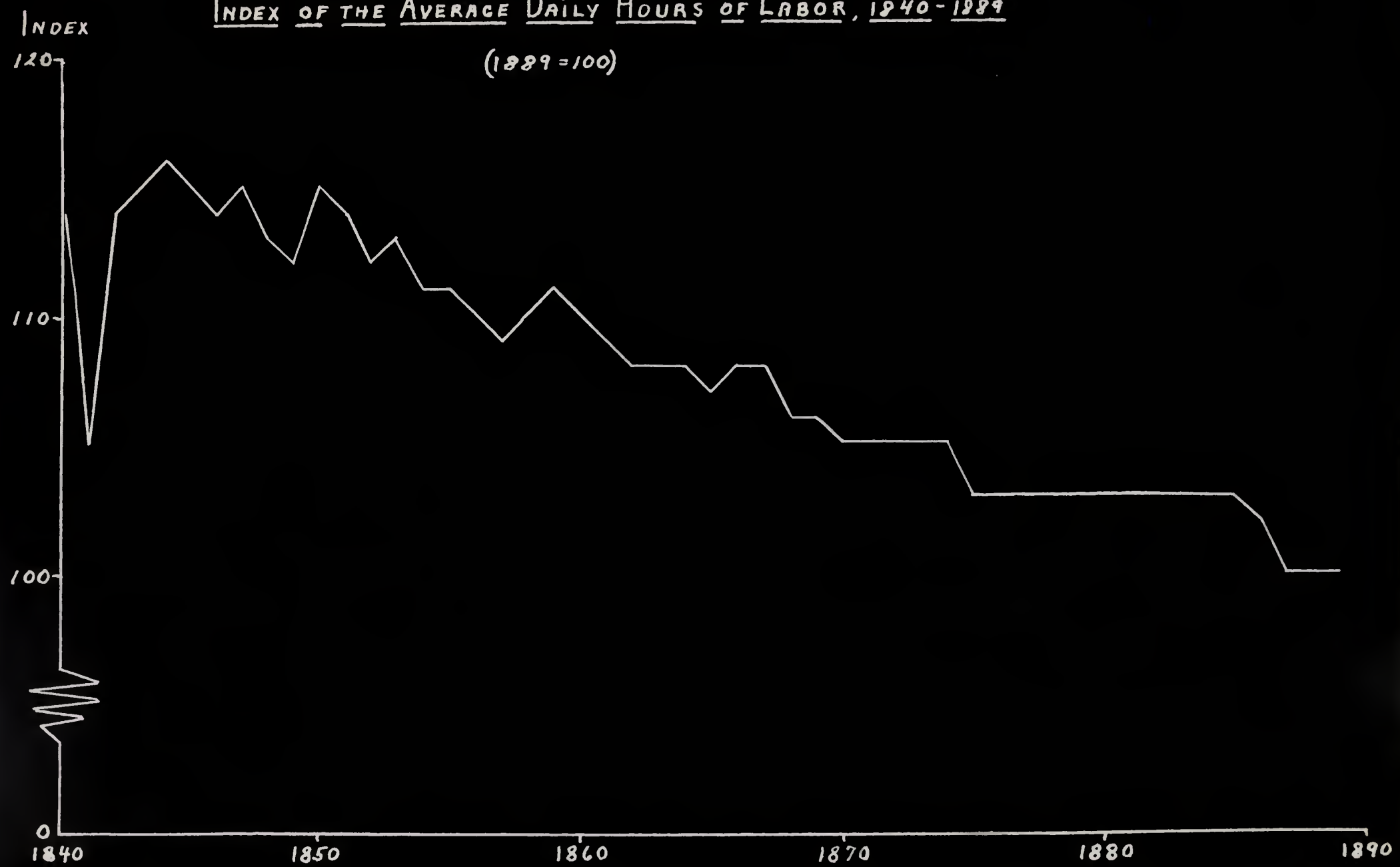
7. Carroll R. Dougherty, Labor Problems in American Industry, (New York: Houghton Mifflin Company, 1941) p. 191.

INDEX OF THE AVERAGE HOURS PER DAY OF LABOR, 1840-1889

(1889=100)

Year	Index	Year	Index
1840	114	1865	107
1841	105	1866	108
1842	114	1867	108
1843	115	1868	106
1844	116	1869	106
1845	115	1870	105
1846	114	1871	105
1847	115	1872	105
1848	113	1873	105
1849	112	1874	105
1850	115	1875	103
1851	114	1876	103
1852	112	1877	103
1853	113	1878	103
1854	111	1879	103
1855	111	1880	103
1856	110	1881	103
1857	109	1882	103
1858	110	1883	103
1859	111	1884	103
1860	110	1885	103
1861	109	1886	102
1862	108	1887	100
1863	108	1888	100
1864	108	1889	100

Source: U. S. Senate, Aldrich Report, Wholesale Prices, and Wages, and Transportation, 1840-1889.



SOURCE: U.S. SENATE, ALDRICH REPORT, WHOLESALE PRICES, AND WAGES, AND TRANSPORTATION, 1840-1889

This series as taken from the Aldrich report on wholesale prices, wages, and transportation covers twenty-one industries from 1840 to 1889. The base year is 1889, and since the 1889 average was 10.0 hours per day exactly, the index numbers indicate the absolute as well as the relative length of the working day.

At best, this series of index numbers can only give us a crude idea of the length of the working day during the period. This is true for a number of reasons. First, according to the Bureau of Labor Statistics, which had a hand in its computation:

> "---the Aldrich report, because of the long period covered, was more often a case of getting such figures as could be obtained than in getting the figures that were wanted."[8]

Secondly, the figures refer to "certain picked" establishments where it is probable, on account of union efforts, shorter hours made an earlier appearance than in the mass of workshops.[9] Thus, although the figures may be accurate, we cannot be sure that they are representative. Furthermore, there is no indication that the averages have been weighted by the number employed in each year. Evidentally a simple arithmetic average was used in securing the figures.

---

8. Bureau of Labor Statistics, History of Wages in the United States from Colonial Times to 1928, Bulletin No. 604, 1934, p. 147.
9. Adams & Sumner, Labor Problems, (New York: The Macmillan Company, 1914) p. 517.

Obviously, the content of the jobs must have changed considerably over the forty-nine year period, for it is an era in which a large amount of innovation occurred. Unfortunately, it has been impossible to discover the nature of the 21 industries included in the index, and thus no real estimate of this problem can be made.

It is not clear whether the base year (1889) was chosen because it was an even 10.0 hours per day, and thus made the construction of the index relatively easy, or because the year was believed to be "normal."

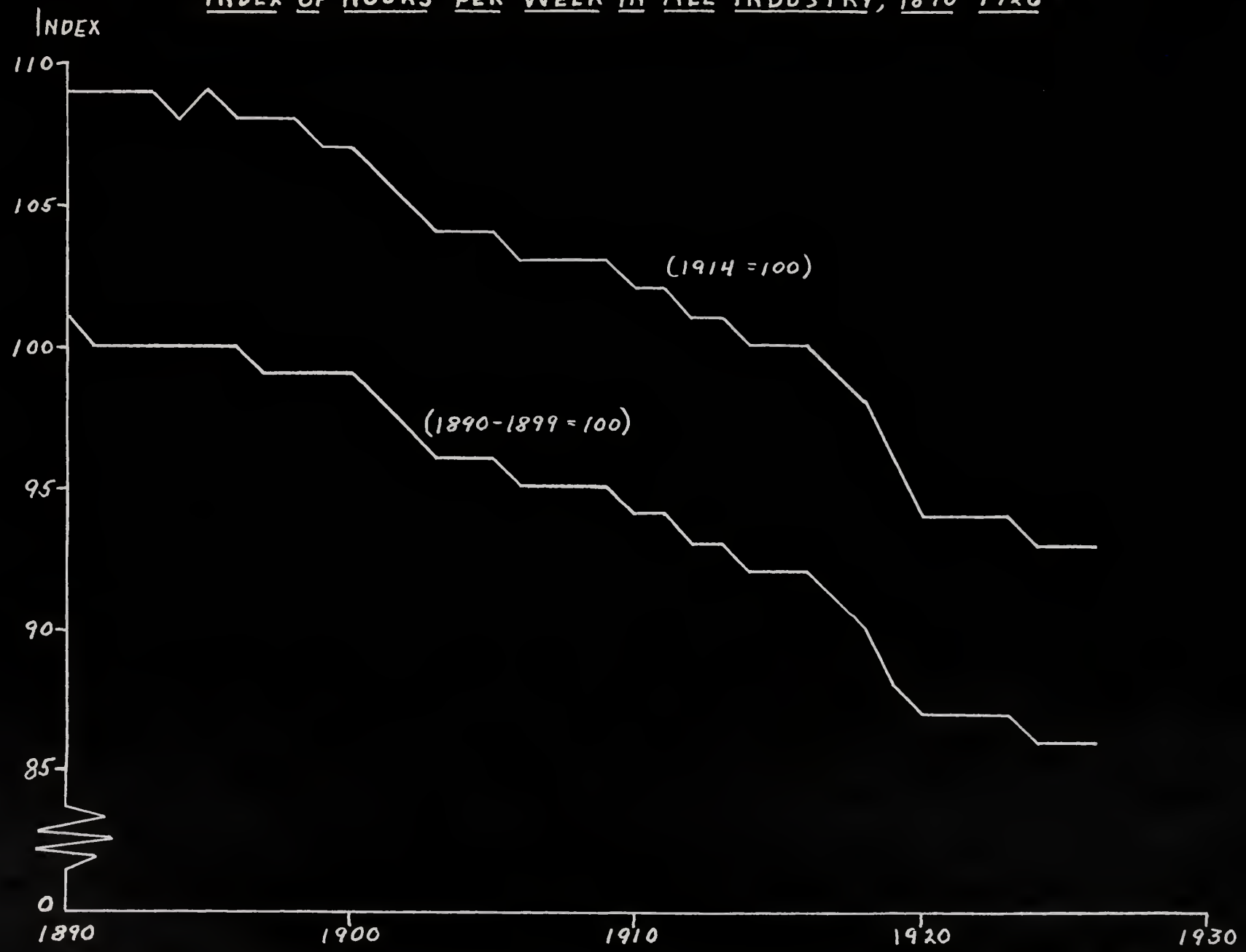
In conclusion, this series demonstrates the difficulties of obtaining data during the earlier periods of our history. Since poor records were kept for the most part, it is better to rely upon historical evidence than statistical data to obtain information about the more distant past. Thus, if we accept this index, it must be with reservations on account of its inadequacies.

INDEX OF HOURS PER WEEK IN ALL INDUSTRY, 1890-1926*

Year	Average hours per week	Index 1890-1899=100	Index 1914=100
1890	58.4	101	109
1891	58.2	100	109
1892	58.2	100	109
1893	58.2	100	109
1894	57.8	100	108
1895	58.1	100	109
1896	57.9	100	108
1897	57.7	99	108
1898	57.6	99	108
1899	57.5	99	107
1900	57.3	99	107
1901	56.8	98	106
1902	56.3	97	105
1903	55.9	96	104
1904	55.7	96	104
1905	55.7	96	104
1906	55.3	95	103
1907	55.3	95	103
1908	54.9	95	103
1909	54.9	95	103
1910	54.6	94	102
1911	54.4	94	102
1912	54.2	93	101
1913	53.8	93	101
1914	53.5	92	100
1915	53.5	92	100
1916	53.3	92	100
1917	53.0	91	99
1918	52.2	90	98
1919	51.3	88	96
1920	50.4	87	94
1921	50.3	87	94
1922	50.5	87	94
1923	50.4	87	94
1924	50.0	86	93
1925	49.9	86	93
1926	49.8	86	93

Source: Paul H. Douglas, Real Wages in the United States, 1890-1926, (Boston and New York: Houghton Mifflin Company, 1930) p. 208.
*Standard hours.

INDEX OF HOURS PER WEEK IN ALL INDUSTRY, 1890-1926 *



SOURCE: PAUL H. DOUGLAS, REAL WAGES IN THE UNITED STATES, 1890-1926, P. 208

* STANDARD HOURS

Unlike the previous index of hours Paul H. Douglas' series may be held in high esteem. It is an index of the standard hours per week in all industry, and this includes (1) all manufacturing, (2) the building trades, (3) government employees, (4) coal miners (anthracite and bituminous) (5) transportation workers (steam railroad employees and seamen), and (6) unskilled labor. These groups comprised 7.0 million workers in 1890, 14.9 million in 1922, and 14.0 million in 1926.[10] It may be noted that the data are quite comprehensive and contain representative groups.

This index is not one of actual hours worked, but one of standard hours. In other words, it shows the average number of hours comprising a full time week in all industry. According to the phase of the business cycle in which any one year happens to be, actual hours may be greater or less than standard hours. During periods of prosperity, actual hours usually exceed standard hours, while in the depression phase they are usually less.

As far as weighting is concerned, Douglas has weighted each group by the number employed in that group for each particular year. This is the standard method of weighting an index of hours, because it assigns to each group its proper importance in the index. If this method had not been used, it is probable

10. Paul H. Douglas, Real Wages in the United States, 1890-1926, (New York: Houghton Mifflin Company, 1930) p. 204.

that low or high groups would have exerted undue influence on the final figures.

In order to gain a better perspective of the data, two indices have been computed, one with 1890-99 as the base, and one having 1914 as the base. The double index is a useful arrangement, although at first it may appear confusing for it allows us to view the data from two different points of time. Moreover, the selection of both bases is good. The period 1890-99 was a stable decade as far as hours were concerned, and is a fine basis upon which to construct the relative change. The other base, 1914 is another stable period of time for the hours of work, coming as it did immediately prior to World War I.

Although the data are complete and the mechanics of the index good, this index contains the same pitfalls that all indices of hours do. First of all, it is impossible to assume that the content of the jobs depicted has remained identical over time. Also, it should be noted that Douglas has adhered to a given list of jobs insofar as this is possible within industrial groups. But in keeping this factor constant, perhaps some excluded group may have become more important as time passed.

Douglas notes that, although the index represents appreciable gains in leisure,

> "---they may well be offset either in whole or in part by an increased speeding up of the work and by the requirement of more time in going to and from work. The fact that the American people seem on the average to consume fewer calories than was the case several decades ago is at least some presumptive evidence to indicate that they are not expending as much total physical energy as they formerly did."[11]

Thus, again it is emphasized that an index of hours is merely a quantitative measurement and quality or intensity of work is completely outside its sphere.

Finally, this particular index is one of weekly hours, and no conclusions can be drawn concerning the number of hours worked per day nor the number of days per week. Nevertheless, we must evaluate it as a good index even though it contains some deficiencies. These are almost impossible to overcome in measuring the relative changes in hours over time.

---

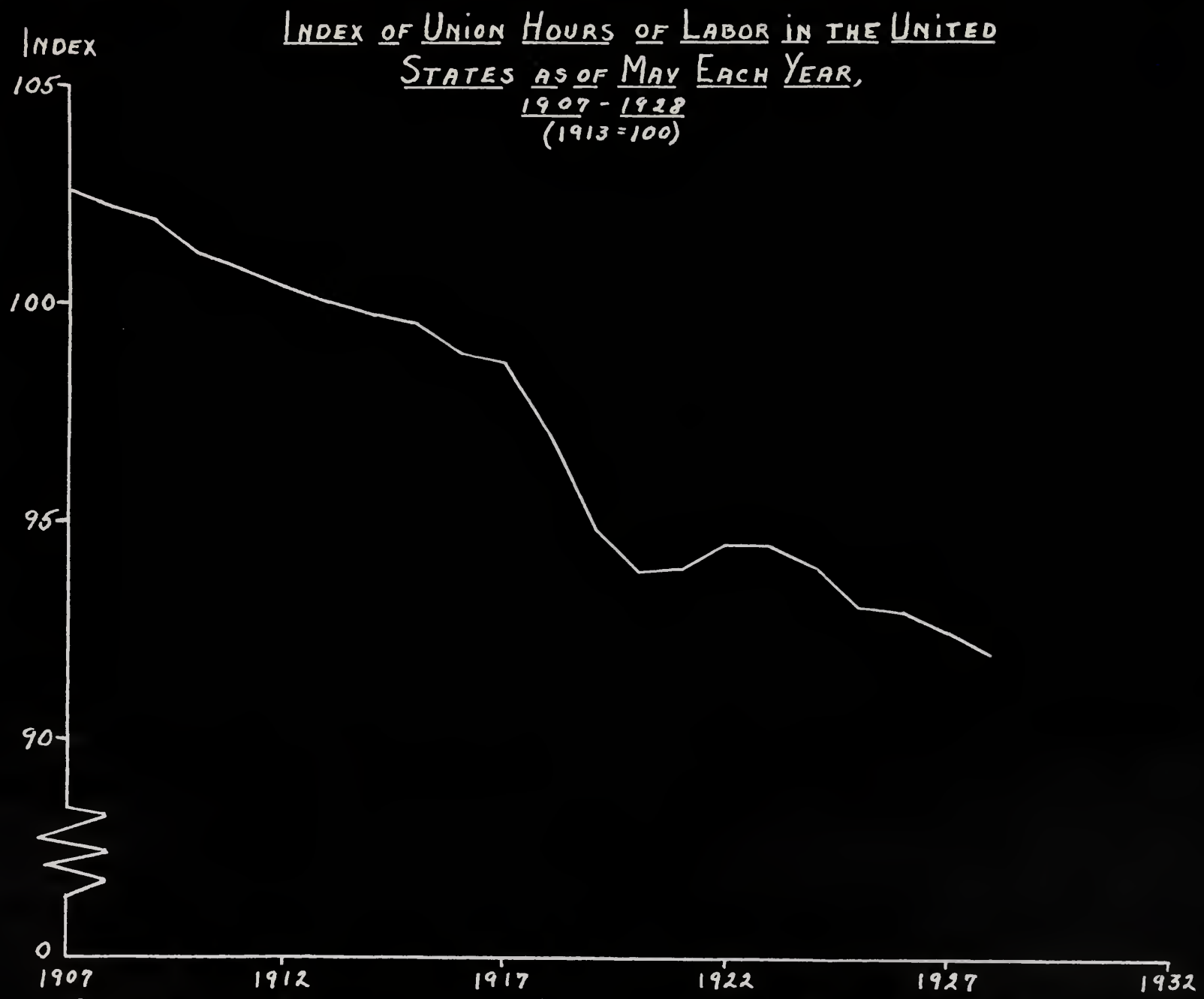
11. Ibid., p. 209.

INDEX OF UNION HOURS OF LABOR IN THE UNITED STATES AS OF MAY EACH YEAR, 1907-1928

(1913=100)

Year	Index of hours per full-time week
1907	102.6
1908	102.1
1909	101.9
1910	101.1
1911	100.7
1912	100.3
1913	100.0
1914	99.6
1915	99.4
1916	98.8
1917	98.4
1918	97.0
1919	94.7
1920	93.8
1921	93.9
1922	94.4
1923	94.3
1924	93.9
1925	93.0
1926	92.8
1927	92.4
1928	91.9

Source: U. S. Bureau of Labor Statistics, History of Wages in the United States from Colonial Times To 1928, Bulletin No. 604, 1934, p. 521.



SOURCE: U.S. BUREAU OF LABOR STATISTICS, BULLETIN NO. 604, P. 621

The U. S. Bureau of Labor Statistics has computed these index numbers of union hours of labor in the United States as of May each year, 1907 to 1928, with 1913 as the base. This index includes all union trades in all large cities, except street-railway motormen, conductors and bus drivers. Naturally, since union trades make up only a portion of our industrial life, this index makes no effort to typify the hours of work of all workers in the United States. Moreover, union employees often have a stronger bargaining position than non-union workers, and so their relative reduction as well as absolute reduction in hours, is probably greater than obtained by the former group.

Again we may comment on the content of jobs, and the same criticisms apply to this index as have been stated previously. The criticism may be qualified regarding this index because instead of adhering to a given list of industries and cities, the number of trades and cities included in the data varies from year to year.[12] This violates a basic rule of index numbers which states that identical commodities or items should be measured from time period to time period. Of course this criticism should not be interpreted to mean that the Bureau of Labor Statistics made this variation purposely. In all probability, it was due to the nature of the sources ("all access-

12. U. S. Bureau of Labor Statistics, History of Wages in The United States from Colonial Times to 1928, op.cit., p. 521.

ible sources" were used).[13] At any rate, the composition of the data changes from year to year and, consequently, the index numbers suffer from this deficiency.

13. Ibid., p. 520.

INDEX OF AVERAGE WEEKLY HOURS IN ALL MANUFACTURING, 1909-1947

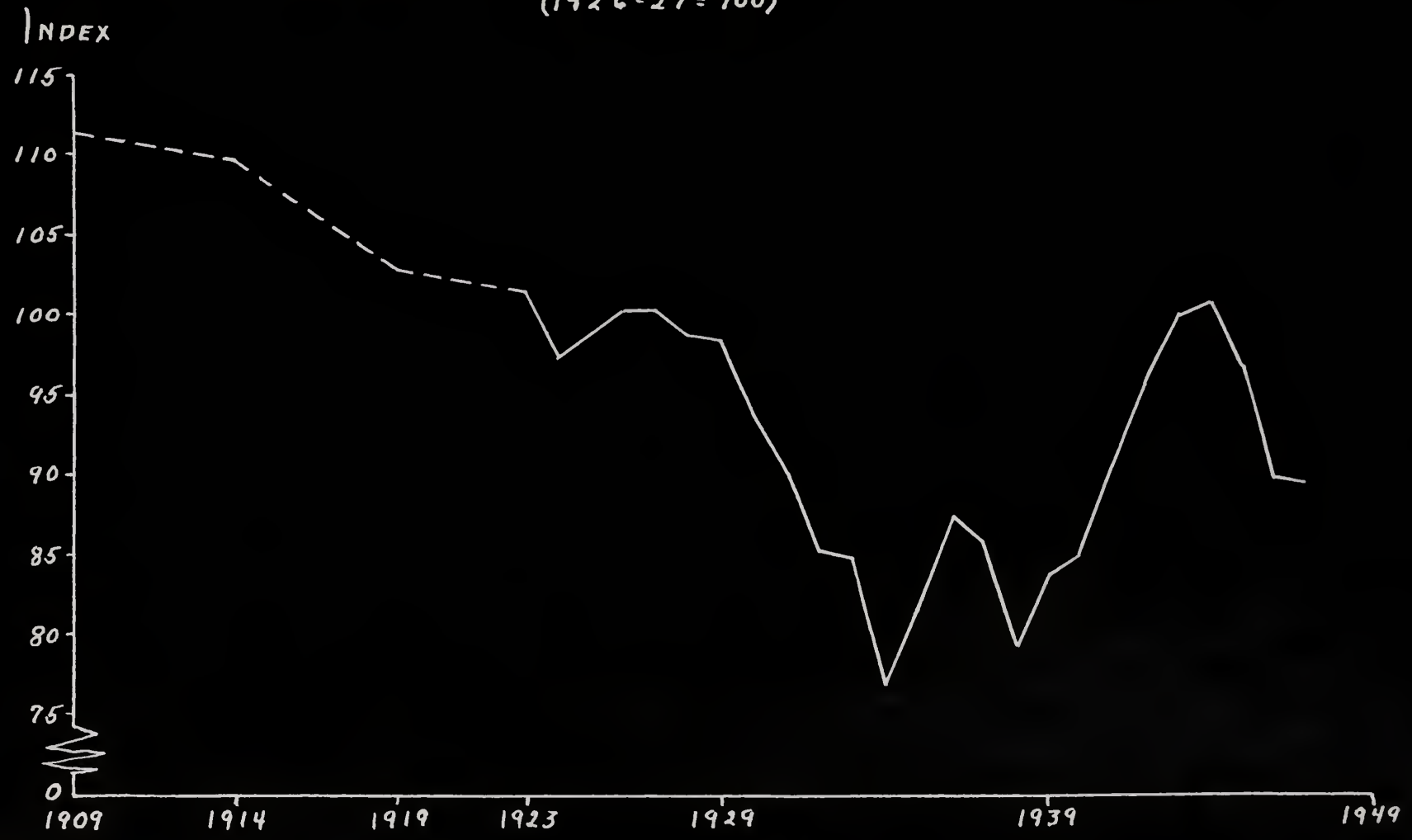
(1926-27=100)

Year	Average Weekly Hours	Index
1909	51.0	111.1
1914	49.4	109.8
1919	46.3	102.9
1923	45.6	101.3
1924	43.7	97.1
1925	44.5	98.9
1926	45.0	100.0
1927	45.0	100.0
1928	44.4	98.7
1929	44.2	98.2
1930	42.1	93.6
1931	40.5	90.0
1932	38.3	85.1
1933	38.1	84.7
1934	34.6	76.8
1935	36.6	81.3
1936	39.2	87.1
1937	38.6	85.7
1938	35.6	79.1
1939	37.7	83.7
1940	38.1	84.7
1941	40.6	90.2
1942	42.9	95.3
1943	44.9	99.7
1944	45.2	100.4
1945	43.4	96.4
1946	40.4	89.7
1947	40.3	89.5

Source: U. S. Bureau of Labor Statistics, Handbook of Labor Statistics, 1947 Edition, Bulletin No. 916, p. 51.

INDEX OF AVERAGE WEEKLY HOURS IN ALL MANUFACTURING, 1909-1947

(1926-27 = 100)



SOURCE: U.S. BUREAU OF LABOR STATISTICS, BULLETIN NO. 916, P. 51

This last index of hours was computed with data secured from the U. S. Bureau of Labor Statistics. The date are the average weekly hours of work in all manufacturing in the United States from 1909 to 1947. Included in the sample are approximately 31,000 establishments employing more than 7 million workers in the following industries: 1) iron and steel and their products, 2) electrical machinery, 3) machinery, except electrical, 4) transportation equipment, except automobiles, 5) automobiles, 6) nonferrous metals and their products, 7) lumber and timber basic products, 8) furniture and finished lumber products, 9) stone, clay, and glass products, 10) textile-mill products and other fiber manufactures, 11) apparel and other finished products, 12) leather and leather products, 13) food, 14) tobacco manufactures, 15) paper and allied products, 16) printing, publishing and allied industries, 17) chemical and allied products, 18) products of petroleum and coal, 19) rubber products and 20) miscellaneous industries.

The figures for these industries are for:

> "Production and related workers including working foremen and all nonsupervisory workers (including lead men and trainees) engaged in fabricating, processing assembling, inspection, receiving, storage, handling, packing, warehousing, shipping, maintenance, repair, janitorial, watchman services, product developments, auxiliary production for

> plant's own use (that is, power plant) and record-keeping and other services closely associated with the production operations listed. Excluded are supervisory employees (above the working foreman level) and their clerical staffs, routemen, and salesmen."[14]

Thus, the type of work performed is outlined in detail, but this adherence to a given list of jobs does not eliminate changes in the job content over time. Although the same work may be performed throughout the interval, it may be performed by different methods at the various time periods. Even in this series where every effort is made to measure the same commodity (hours of work) in each year, it is impossible to perform the task perfectly.

The Bureau of Labor Statistics obtained the primary data by questionnaires sent to individual firms. These firms were requested to supply employment and man-hour data for the pay period ending nearest the 15th of the month. This pay period was selected to eliminate from the pay period reported the influence of such factors as national holidays insofar as possible.[15] Tabulations were then made by industry, and the averages of hours were computed in the following manner: Man-hours were divided by employment, yielding average hours per week. This figure was affected by absenteeism, turnover, and similar

14. U. S. Bureau of Labor Statistics, Handbook of Labor Statistics, 1947 Edition, Bulletin No. 916, p. 51.
15. Ibid., p. 52.

factors, as the employment figure included all persons working at any time during the pay period. Therefore, these average hours are actual hours and do not refer to standard hours of work. To obtain the figure for each year, an average was computed from the monthly figures. As far as weights are concerned, the average for each industry was weighted by the estimated number of productive workers in the industry. It should be noted that in this series no data were collected for the following years: 1910, 1911, 1912, 1913, 1915, 1916, 1917, 1918, 1920, 1921, and 1922. So with the exception of 1909, 1914, and 1919 continuous data extend from 1923 to 1947.

As far as it is possible to compute a good index of hours, these data of the Bureau of Labor Statistic fulfill the qualifications.

In conclusion, the problems involved in the computation of indices of hours should be reviewed briefly. First, a given list of jobs should remain identical, but in passing over time the index will omit new jobs, if it adheres to a given list. The content of the job should be identical for each time period, but this is impossible to assume. Following these difficulties, there is the problem of whether a reduction in hours means less work. But an index of hours is purely a quantitative device, and no indication of intensity of work performed is manifested. Furthermore, from data of weekly hours, it is impossible to ascertain the days or the number of hours per day worked.

Naturally from daily figures, no estimate of weekly hours can be derived. Finally, an index number of hours does not indicate the pattern of work, e.g., figures may include split shifts, swing shifts, and day or night employment. In addition to these difficulties peculiar to an hour's index, all the other problems of computation of index numbers are included. Thus, the sample should be representative, the data accurate, the base "normal", and the proper weights applied.

Although the four indices of hours examined were found in varying degrees to be deficient in the qualities of a "good" index, this statement by Joseph A. Schumpeter seems to be apt:

> "---the old argument of practical workers that indices tend to give roughly the same picture, however well or faultily constructed, contains after all some little element of truth, which for us, it is believed, suffices to justify what we are going to do with them, provided we watch our step in drawing conclusions."[16]

16. Joseph A. Schumpeter, Business Cycles, (New York: McGraw-Hill Book Company, Inc., 1939) Vol. II, pp. 459-460.

APPENDIX II

EFFECTS OF CHANGES IN DAILY AND WEEKLY HOURS ON EFFICIENCY AND OUTPUT DURING THE FIVE-DAY WEEK

Type of Work	No. of workers	Changes in Hours of Work				Per Cent Change In		Efficiency Per Cent Change	Output Input Ratio
		Daily		Weekly		Hours	Output		
		from	to	from	to				
Machine-Controlled Pace Moderately Heavy	39	8	10	40	50	+25.0	+23.5	-4.0	0.9
"	50	8	10	40	50	+25.0	+18.0	-4.0	.7
Operator-Controlled Pace Light	13	8	9	40	45	+12.5	+ 6.4	-5.4	.5
"	13	8	9.5	40	48	+20.0	+ .6	-16.2	
"	24	8	9.5	40	46.5	+16.3	+13.3	-1.0	.7
"	10	9	9.5	44.5	46.5	+ 4.5	+ .2	-4.0	.1
"	10	8	9.5	40	46.5	+16.3	+11.8	-6.3	.7
"	21	8	9.5	40	46.5	+16.3	+14.2	-2.6	.9
"	21	8	9	40	44	+10.0	+ 6.7	-3.5	.7
"	13	8	9	40	44	+10.0	+ 7.9	-3.0	.8
"	13	8	9.5	40	47.5	+18.8	+18.6	-1.3	1.0
"	28	8	9	40	43	+ 7.5	- 1.1	+1.3	-.1
"	9	9	10	45	50	+11.1	+11.8	+1.2	1.1

Source: U. S. Bureau of Labor Statistics: Data Assembled from Hours of Work And Output, Bulletin No. 917, pp. 9-10.

EFFECTS OF INCREASING WORKDAYS FROM 5 TO 6 PER WEEK,

WITHOUT CHANGES IN DAILY HOURS,

ON EFFICIENCY AND OUTPUT

Type of Work	No. of Workers	Changes in Hours of Work		Per Cent Change In		Efficiency Per Cent Change	Output Input Ratio
		from	to	Hours	Output		
Machine-Controlled Pace Moderately							
Heavy	39	50	58	+16	+10.1	-2.1	0.6
"	50	50	58	+16	+10.2	-1.0	.6
"	700	40	48	+20	+21.0	+1.0	1.1
Operator-Controlled Pace Moderately							
Heavy	32	40	44.5	+11.3	+ 5.9	-1.9	.5
"	21	40	48	+20.0	+22.8	+3.5	1.1
"	8	40	48	+20.0	+21.4	+1.6	1.1
"	10	40	48	+20.0	+20.8	+1.9	1.0
"	14	40	48	+20.0	+22.8	+3.9	1.1
Light	10	50	58	+16.0	+15.1	+ .2	1.0
"	9	40	48	+20.0	+22.8	+1.4	1.1
"	8	40	48	+20.0	+14.9	- .4	.8
"	28	40	46	+15.0	+10.7	-1.6	.7
"	13	40	48	+20.0	+20.2	+ .8	1.0
"	9	40	48	+20.0	+17.9	+1.2	.9
"	9	40	48	+20.0	+19.3	+7.3	1.0

Source: U. S. Bureau of Labor Statistics: Data Assembled from Hours of Work And Output, Bulletin No. 917, pp. 13-14.

EFFECTS ON EFFICIENCY OF DECREASING WORKDAYS

FROM 6 TO 5 PER WEEK, WITHOUT

CHANGES IN DAILY HOURS*

Type of Work	No. of Workers	Daily Hours	Weekly Hours Changed		Efficiency Per Cent Change
			from	to	
Heavy	45	10	60	50	+0.7
"	16	10	58	50	+4.9
Moderately Heavy	15	10	58	50	+11.2
"	33	10	58	50	-5.4
"	18	10	58	50	+7.4
"	18	9-10	58	45-50	+9.1
"	14	10	55	50	+3.0
"	21	8	48	40	+12.4
"	8	8	48	40	+16.1
Light	28	8- 9	48	43	+5.0
"	28	8- 9	46	43	+2.9
"	28	8	48	40	+3.7
"	17	8	48	40	+12.0
"	25	8	48	40	+6.9
"	26	8	48	40	+5.1
"	25	8	48	40	+1.5
"	9	8	48	40	+7.9
"	13	8	48	40	+12.6

Source: U. S. Bureau of Labor Statistics: Data Taken from Hours of Work And Output, Bulletin No. 917, p. 15.

* (Pace controlled by operator)

EFFECTS OF INCREASING DAILY AND WEEKLY HOURS ON

EFFICIENCY AND OUTPUT, DURING A SIX-DAY WEEK*

Type of Work	No. of Workers	Changes in Hours of Work				Per Cent Change in		Efficiency Per Cent Change	Output Input Ratio
		Daily		Weekly		Hours	Output		
		from	to	from	to				
Heavy	48	9	10	52	58	+11.5	+ 3.7	- 3.0	0.3
"	65	8	9.5	48	55.5	+15.6	+13.2	+ .2	.8
"	68	8	9	48	54	+12.5	+13.5	+ 4.1	1.1
Moderately Heavy	275	7.5	10	45	58	+28.9	+25.9	0	.9
"	14	8	9.5	48	57	+18.8	+36.2	+12.7	1.9
Light	66	7.5	9.5	45	55	+22.2	+20.9	+ .1	.9
"	61	7.5	9.5	45	57	+26.7	+15.2	- 7.0	.6
"	26	7.5	9.5	45	55	+22.2	+ 8.4	- 8.0	.4
"	22	7.5	9.5	45	55	+22.2	+12.6	- 7.1	.6
"	59	7.5	9.5	45	57	+26.7	+20.0	- 3.4	.8
"	100	7.5	9.5	45	55	+22.2	+15.9	- 3.6	.7
"	50	7.5	9.5	45	57	+26.7	+14.8	- 6.7	.6
"	10	7.6	10	46	58	+26.1	+36.4	+21.4	1.4
"	10	7.6	10	46	58	+26.1	+48.2	+20.1	1.8
"	15	7.6	10	46	61	+32.6	+39.9	+ 8.0	1.2
"	15	7.6	10	46	61	+32.6	+45.9	+13.3	1.4
"	92	7.6	10	46	58	+26.1	+31.9	+ 7.0	1.2
"	16	9	10.5	54	61.5	+13.9	+ 4.2	- 4.3	.3
"	9	8	9	48	54	+12.5	+ 3.9	- 4.5	.3
"	8	8	9	48	54	+12.5	+ 6.7	+ 3.5	.5
"	15	8	9	48	54	+12.5	+17.8	+ 5.0	1.4
"	40	6+8	7.5	40	44	+10.0	+ 7.4	+ 3.1	.8

Source: U. S. Bureau of Labor Statistics: Data Assembled from Hours of Work And Output, Bulletin No. 917, pp. 24-26.

* (Pace controlled by operator)

INDEX OF OUTPUT PER MANHOUR, SELECTED INDUSTRIES,

UNITED STATES, 1923-1940

(1923-1924=100)

Year	(1) Output	(2) Manhours	(3) Output Per Manhour
1923	100	106	94
1924	95	96	99
1925	105	99	106
1926	112	103	109
1927	113	100	113
1928	117	99	118
1929	127	104	122
1930	109	88	124
1931	91	74	123
1932	68	55	124
1933	75	56	134
1934	83	59	141
1935	95	66	144
1936	114	76	150
1937	121	79	153
1938	104	65	160
1939	117	78	160
1940	135	81	167

Source: E. E. Hagen and N. B. Kirkpatrick, The National Output of Full Employment, American Economic Review, September, 1944, p. 484.

BIBLIOGRAPHY

Adams and Sumner, Labor Problems. (New York: The Macmillan Company, 1914.

American Federation of Labor, Proceedings. 1902.

American Federation of Labor, Proceedings. 1926.

American Federation of Labor, Proceedings. 1927.

American Federation of Labor, Proceedings. 1932.

American Federation of Labor, Proceedings. 1937.

Bell, Spurgeon, Productivity, Wages, National Income. (Washington, D.C.: The Brookings Institution, 1940).

Beman, Lamar T., Five Day Week. (New York: The H. W. Wilson Co., 1928).

Boston Globe, March 23, 1949.

Boston Transcript, December 8, 1934.

Boston Transcript, February 16, 1935.

Bureau of Labor Statistics, History of Wages in the United States from Colonial Times to 1928, Bulletin No. 604, 1934.

Cahill, Marion Cotter, Shorter Hours, (New York: Columbia University Press, 1932).

Census of Manufacturers, 1923.

Chaddock, Robert Emmet, Principles and Methods of Statistics, (New York: Houghton Mifflin Company, 1925).

Committee on Work Periods in Continuous Industry, Federated American Engineering Societies, The Twelve Hour Shift in Industry.

Commons, J. R., and Associates, History of Labor in the United States, (New York: The Macmillan Co., 1918)

Commons, J. R., Documentary History of American Industrial Society. (Glendale, California: The H. Clark Company, 1910) Vol. 6.

Commons, J. R., Documentary History of American Industrial Society. (Glendale, California: The H. Clark Company, 1910) Vol. 9.

Croxton, Frederick E., and Cowden, Dudley J., Applied General Statistics. (New York: Prentice-Hall, Inc., 1939).

Cummins, E. E., and De Vyver, Frank T., The Labor Problem in the United States. (New York: D. Van Nostrand Company Inc., 1947).

Day, Edmund E., Statistical Analysis. (New York: The Macmillan Company, 1925).

Dougherty, Carroll R., Labor Problems in American Industry, (New York: Houghton Mifflin Company, 1941).

Douglas, Paul H., Real Wages in the United States. (Boston and New York: Houghton Mifflin Company, 1930)

Extent of the Five Day Week, Monthly Labor Review, Vol. 33.

Fisher, Irving, Bulletin of the Committee of One Hundred on National Health. (The National Conservation Commission 1909).

Fisher, Irving, The Making of Index Numbers. (New York: Houghton Mifflin Company, 1922).

Frankfurter, Felix and Goldmark, Josephine, The Case of the Shorter Workday. (National Consumers League, 1916), Vol. 1.

Gunton, George, Eight Hour Movement. (Washington, D.C.: The American Federation of Labor, 1889).

Hagen, E. E., and Kirkpatrick, N. B., The National Output of Full Employment. American Economic Review, September, 1944.

Harris, Herbert, American Labor, (New Haven: Yale University Press, 1938)

Kossoris, Max D., Hours of Work and Output, (United States Bureau of Labor Statistics, Bulletin No. 917, 1947)

Kossoris, Max D., Studies of the Effects of Long Working Hours. (United States Bureau of Labor Statistics, Bulletin No. 791-A, October 17, 1944).

Lester, Richard A., Economics of Labor. (New York: The Macmillan Company, 1947).

Millis, Harry A., and Montgomery, Royal E., Labors Progress and Some Basic Labor Problems. (New York: McGraw-Hill Book Company Inc., 1938).

National Industrial Conference Board, Research Report Number 7. (Boston, 1918).

National Industrial Conference Board, Research Report Number 12. (Boston, 1918).

National Industrial Conference Board, Research Report Number 16. (Boston, 1919).

National Industrial Conference Board, Research Report Number 18. (Boston, 1919).

National Industrial Conference Board, Research Report Number 27. (Boston, 1920).

New York Times, April 26, 1931.

New York Times, May 26, 1938.

Persons, Warren Milton, The Construction of Index Numbers. (New York: Houghton Mifflin Company, 1928).

Phillips, W., Speeches, Lectures and Letters. (Boston, 1894).

Peterson, Florence, Survey of Labor Economics. (New York: Harper and Brothers, 1947).

Powderly, T. V., Thirty Years of Labor. (Columbus, Ohio: Excelsior Publishing House, 1890).

Schumpeter, Joseph A., Business Cycles. (New York: McGraw-Hill Book Company Inc.) Vol. 2.

Shorter Workday. The Brotherhood of Railroad Trainmen, Cleveland, Ohio, March, 1937.

Siberling, Norman J., The Dynamics of Business. (New York: McGraw-Hill Book Company Inc., 1943).

Slichter, Sumner H., Implications of the Shorter Hour Movement. Proceedings of the Academy of Political Science, January, 1934.

Taft, Phillip, Economics and Problems of Labor. (New York: Stackpole and Heck Inc., 1948).

The Encyclopedia of the Social Sciences. (New York: The Macmillan Company, 1932) Vol. 7.

The National Recovery Administration. American Liberty League, Washington, D.C., Document No. 11, January, 1935.

Todd, Arthur James, Industry and Society. (New York: Henry Holt and Company, 1933)

United States Bureau of Labor Statistics, Handbook of Labor Statistics. 1947 Edition, Bulletin No. 916.

United States Bureau of Labor Statistics, Labor Information Bulletin. Vol. 9, June, 1942.

Ware, N.J., The Labor Movement in the United States. 1860-1895, (New York: D.C. Heath and Company, 1929).

Work Less or Earn More? (You and Industry Series, Booklet Number 7, 1936,) National Association of Manufacturers.

Yellen, Samuel, American Labor Struggles. (New York: Harcourt Brace and Company, 1936).

ABSTRACT

The first strike over the hours of work occured in Philadelphia in 1791, when the carpenters struck for a ten-hour day. During these early years the demand for shorter hours was led by skilled craftsmen who were organized. The opposition was favored by public opinion, which not only condoned but favored the long working day from "sun to sun." Idleness was considered a vice. However, with the skilled crafts in the lead, particularly the building trades, the hours of work were shortened slowly, but real progress was not made until after the Civil War.

Immediately after the war, labor organizations sought to shorten hours through government legislation, for they were not yet strong enough to wage an economic struggle. During this period the Eight-Hour Leagues became prominent, and Ira Steward was one of the leaders of the movement.

The Knights of Labor also favored legislative action alone to attain the eight-hour day, and the record of the organization indicates that it offered little more than moral support to the issue. With the advent of the American Federation of Labor, the method was changed from legislative to economic action. May 1, 1886 was chosen as the date for a general strike for the eight-hour day. The Haymarket Square disaster was the result of the strike in Chicago, and this

incident destroyed whatever success the eight-hour walkout might have obtained. Various dates were chosen in the 1890's by the American Federation of Labor to strike for the shorter hours. Although these strikes were moderately successful, the eight-hour movement, as such, came to a close.

During the first decade of the new century, the agitation for shorter hours by individual unions became increasingly stronger. Between 1900 and 1914 the building trades workers and a few other fortunately situated and well organized groups obtained the forty-four-hour week in various parts of the country. In 1916, the Adamson Act established a basic eight-hour day for employees on interstate railroads. Shortly later, World War I witnessed a reduction in the standard hours of work on account of the renewed strength of labor unions.

The American Federation of Labor during the twenties sought the five day week, and some industries adopted the new schedule. The depression of the thirties brought about a great reduction in hours as a spread-the-work movement came into being. With the advent of World War II actual hours increased, but the standard was forty hours in most industries as established by the Fair Labor Standards Act of 1938. In the post-war period, actual hours fell a little and the demand for a basic thirty-five-hour week began to felt.

Among the theories which have been advanced concerning

the hours of work, there are many of a social nature. Their importance rests upon the fact that they have been used widely and their influence in shortening the hours of work have been great. Theories involving citizenship, culture, education, leisure, fatigue, and health may be classified under this general heading.

During the early years of the nineteenth century, the main arguments of American labor for reducing working hours revolved about the social theories. However, economic reasons have become more prominent in labors bid for shorter hours as technology has advanced and productivity has increased.

The history of the shorter hours movement in the United States has been replete with general employer opposition to reduced hours. Their argumentation against decreasing work schedules has taken different forms, but fundamentally the root of their opposition has been the fear that shorter hours would lead to increased costs; and of course, increased costs, they have reasoned would mean less profits.

From examination of studies made by the U. S. Bureau of Labor Statistics and the National Industrial Conference Board it may be concluded that, in general, shorter hours increase manhour productivity. In these studies every effort was made to isolate all other factors affecting productivity by holding them constant. Thus, the validity of the conclusions are assured.

Since productivity has increased there arises the theoretical and statistical aspects of the distribution of gains of this increased productivity. Such an analysis indicates that the distribution of these gains either to workers or to owners of capital entirely is not desirable as far as employment and output are concerned. Only when the savings are distributed to the consumers in the form of lower prices, and if the demand for the product is elastic, will employment and output increase. Furthermore, it may be concluded that workers and the owners of capital will in the long run benefit from such a distribution.

Closely related to any discussion of the hours of work issue are the problems involved in the computation of an index of hours. Although these problems are great, it may be said that indices of hours, computed with adherence to the normal rules applicable to all indices, are useful means of examining the changes in the hours of work. Nonetheless, factors such as changes in job content which cannot be effectually eliminated over time, detract from the measurement of changes in the hours of work alone. Moreover, the fact should be recognized that an index of hours is purely a quantitative statistical device which manifests no intensity of the work performed. Finally an index number of hours does not indicate the pattern of work. For example, the figures may include

hours worked on split shifts, swing shifts, and day or night employment. In addition to these problems peculiar to an hour's index all the difficulties, met in the computation of any index, are involved. Thus, the sample should be representative, the data accurate, the base period "normal," and the proper weights applied.